# AN ANALYSIS OF FACTORS ASSOCIATED WITH RESPONSIBILITY ATTRIBUTION IN INCIDENTS OF MEDICAL MALPRACTICE

By

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# CHAPTER ONE: Introduction

This study will examine the role of severity effects and electiveness in medical malpractice litigation. The influence of severity effects within the legal setting has been widely studied with varying results, which may be due to the lack of a consistent, situational context across all studies. Consequently, the inconclusive findings of prior research suggest it may be more productive to study the influence of severity effects within a specific context such as medical malpractice. Furthermore, this research will introduce electiveness as an additional extra-legal factor which influences the attribution of responsibility in instances of medical malpractice.

Attribution of responsibility lies at the heart of our professional, social, and political existence. Professionally, it organizes and defines the roles within the corporate entities of which we are employed. It functions as a basis for the division of labor along with the initiation, promotion and termination of our careers. Outside of our careers, responsibility attribution organizes our social lives. It defines the relationships among our inner circles and shapes our perceptions of those around us and the meaning of their actions. On a larger social scale, responsibility attribution defines the roles and responsibilities associated with one's placement within the larger community and society. Finally, responsibility attribution defines our political identities. It engenders a conception of free will, which underpins our geopolitical identities (Arendt, 1969). In a society of laws, it dictates and renders judgment on appropriate and inappropriate behavior and the consequences associated with each area of our lives (Feigenson, 2000).

Responsibility is a central characteristic of human agency. The ability to reflect upon choices and assign meaning to the implications of those choices has led some to argue the notion of responsibility is definitive of human agency (Arendt, 1969; Conte & Paolucci, 2004; Feigenson, 2000; Weiner, 1995). Whereas choice regards the selection of competing options, responsibility attribution establishes the links within the social web of action, roles, identities, and relationships. It is a projection of meaning on to this social web. Accepting responsibility for a choice extends well beyond mere selection. It establishes a relationship between an agent and an act. Conte and Paolucci (2004) have described responsibility as implying "deliberative capacity (free will, etc.)" in which "only autonomous and deliberative agents can be responsible for given events, both negative and positive."

Weiner (1995) offers further support for this view, suggesting that judgments of responsibility are "a pervasive feature of our social existence." Feigenson (2000) noted such judgments "define ourselves: how we think and feel about what happens to us and others." Other researchers have argued humans organize both the physical and social world through cause and responsibility (Heider, 1958; Phares & Wilson, 1972). Without such capabilities, humans would find themselves unable to make sense of the external world.

The study of responsibility dates back to Aristotle, who characterized responsibility holders as "decision-makers endowed with the capacity to foresee consequences of action (or inaction) and choose accordingly" (Conte & Paolucci, 2004). For Aristotle, responsibility pertained to an obligation one has to achieve the

greater good (Furley, 1997). "The central issue for Aristotle is the question of character or personality — what does it take for an individual human being to be a good person" (Furley, 1997). This early acknowledgment highlights the manner in which responsibility has developed in relation to questions of morality, which continue to shape our conception of responsibility today.

Aristotle's representation implies five fundamental tenets of responsibility: anticipation, self-reflection, agency, free will and proper judgment. Together, these five tenets are necessary functions of human agency which influence the assignment of responsibility to an individual.

Anticipation denotes the ability or expectation to foresee the consequences of a choice. In order for an individual to be held responsible for an action, he or she must either be capable of foreseeing or reasonably expected to have foreseen the consequences of his or her actions. The individual's capability to foresee such consequences derive from experience and/or social knowledge. For example, if a person drives a car after consuming alcohol and causes an accident, he or she will be held responsible for his or her actions because there exists a social knowledge that it is dangerous to consume alcohol and drive an automobile.

However, one can be held responsible where no such social knowledge exists if there is a preceding experience which establishes an expectation for a potential outcome. For example, if an individual experienced recent problems with the brakes failing on his or her automobile and, while driving, a brake failure causes him or her to get in to an accident and injure another person, he or she will be held responsible.

While it is not social knowledge that one should expect his brakes to fail, this individual has prior experiences which should have led him or her to expect that such an incident could occur.

There are instances where an individual could not have anticipated the possibility of a particular outcome in which the individual is typically not held responsible for the outcome. For example, if the same individual involved in the automobile accident resulting from brake failure had no prior indication the brakes would or could fail, he is less likely to be held responsible for the resulting injuries.

The next tenet of responsibility is self-reflection. Self-reflection refers to an awareness or ability to understand a relationship between one's actions and the resulting consequences. This requires both a mental state and capability to understand that one's actions are the cause of a particular set of consequences. This suggests the individual must be capable of understanding he or she is responsible for the consequences. While this tenet might be viewed as one of lesser importance in regards to the assignment of responsibility to an individual for his or her acts (i.e. he caused it regardless of whether or not he or she realizes he or she caused it), it is a standard which is frequently deployed in criminal trials. Furthermore, Martin (1998) suggests it is a necessary moral check in a system designed to uphold justice and fairness.

There are two particular instances within a trial setting in which one's mental state or capabilities are used as a standard for adjudication. The first is the insanity defense, which refers to "a plea that defendants are not guilty because they lacked the

mental capacity to realize that they committed a wrong or appreciate why it was wrong" (Martin, 1998). The insanity defense essentially proposes the individual's state of mind precluded him from understanding the implications of his actions and acting in accordance with such an understanding. Consequently, this preclusion prevents him or her from being held responsible for his actions.

A second instance in which one's mental state or capabilities are used as a standard for assigning responsibility stems from the recent Atkins v. Virginia Supreme Court ruling (CNN, 2002). This 6-3 ruling prevents states from executing mentally retarded individuals. Proponents of this decision argue, "because of their mental retardation, these men and women cannot understand fully what they did wrong and many cannot even comprehend the punishment that awaits them. While they have the bodies of adults, in crucial ways their mental function is more like that of children" (Human Rights Watch Report, 2001).

The Atkins v. Virginia ruling highlights society's acknowledgement that an individual, in order to be held responsible for his or her actions, must be capable of understanding that he or she has done something wrong and why the particular action was wrong.

The standards established under the Atkins v. Virginia ruling and the insanity defense have faced widespread criticism. For some, the issue is quite simple: an individual should be held responsible for his or her actions regardless of whether or not he or she is capable of understanding he or she is responsible. Typically, this criticism manifests itself in instances where violent crimes have been committed. For

those close to the crime, it is often unfathomable that someone could commit such a crime and escape responsibility for it under what they see as a "technicality." Consequently, there have been numerous attempts to erode the insanity defense or force stricter applications of the exemption. Even Supreme Court Justice Anthony Scalia expressed his harsh criticism of the Atkins ruling. However, for the time being, the mental state/competence standard has been upheld as the majority view.

The third tenet of responsibility is agency. Agency refers to the ability, authority, or power to affect consequence. Under this tenet, the individual must possess the ability to effectuate change. In other words, he or she must be capable of influencing the outcome. This may include physical, hierarchal, or authoritative capabilities. For example, if an individual is driving a car and is rear-ended, which propels him into the car in front of him, resulting in an injury to that person, he is unlikely to be held responsible for that injury. While his car hit the car in front of him and technically caused the damage to that car, he was hit from behind, which propelled his car into the car in front of him. In this instance, the individual in question had no physical control over the car behind him which instigated the chain of events. Therefore, it was not within his power to prevent the injury to the car in front of him. Consequently, he is unlikely to be held responsible for the injuries to the person in the car in front of him.

Agency also includes capabilities associated with authority and/or social power. For example, if a graduate teaching instructor is instructed by her department to fail a student for plagiarizing a term paper, the graduate teaching instructor is not

responsible for the choice of punishment. While the instructor may have caught the act of plagiarism, reported it to the department and reported the punishment back to the student, it is not within the instructor's authority to over-ride the decision by the department to fail the student. Therefore, the instructor is not held accountable for the choice of punishment.

The fourth tenet of responsibility is free will. Free will entails the freedom to make a choice without constraint. This requires an individual be free of coercion, physical, and social constraints in making a choice. Without such freedom, the individual cannot be held responsible for his or her actions. For example, in the scenario where the individual causes an accident because he was intoxicated while driving, if he had been forced to get into the car and drive, against his will, by another person holding a gun, the individual would not be held responsible for his actions. In this instance, it was not his choice to get in the car and drive. Rather, he was physically coerced to perform an action that resulted in injuries.

Joseph and Tedeschi (1983) conducted a study examining the relationship between coercion/constraints and the harm induced by the actions of an individual. They found attribution of responsibility requires a complex analysis of the relationship between the levels of coercion and the level of resulting harm. Specifically, Joseph and Tedeschi (1983) isolated three issues. First, coercion is not an acceptable justification when non-harmful alternatives were available to the actor. This acknowledges an individual may have options available that free him or her of the coercion. Perhaps the individual being held at gunpoint had opportunities to

escape without harm. If these opportunities existed and the individual did not take them, he or she can be held responsible for the resulting harm even though some level of coercion still existed.

The other two issues pertain to the relationship between the amount of harm and the amount of coercion. The second factor indicates, when the coercion exceeds the amount of harm, the individual should be perceived as constrained, justified, and not responsible for the harm. Finally, the third factor indicates, when the amount of harm exceeds the amount of coercion, the individual should be perceived as unjustified and responsible for the harm.

The final tenet of responsibility is proper judgment. Proper judgment denotes the individual's ability to make an appropriate decision. This final tenet overlaps with the tenet of self-reflection. Self-reflection signifies the individual's awareness of a relationship between his actions and the resulting consequences. In other words, the individual must be capable of understanding his actions caused the harm. Proper judgment establishes, not only must an individual be capable of understanding the relationship between his actions and the resulting consequences, but also be capable of understanding and choosing the superior choice. The individual must be capable of understanding the difference between right and wrong.

The earlier examples of the insanity defense (Martin, 1998) and the Atkins v. Virginia ruling (CNN, 2002) acknowledge the additional requirement that the individual be capable of understanding right from wrong. If the individual can not understand why the choices he made were wrong, he cannot be held responsible for

the act. This standard is commonly used in disciplining children in the early stages of life. For example, a three year-old turns on the water and floods the bathroom is unlikely to be held responsible because a three year-old is not capable of understanding why it was a poor decision to turn the water on and let it run.

Each of these five tenets contributes to a framework for determining and attributing responsibility to another individual. A failure to meet any single standard can raise significant questions regarding the accountability of the individual in question. Furthermore, each of these standards rests upon moral and ontological assumptions of a given culture.

An analysis of responsibility attribution becomes even more complex when separated from the notion of causality. As noted in the earlier analysis of the five tenets of responsibility, responsibility does not consist of simply identifying the cause of a harm. While causality and responsibility work in concert as human perception and cognition guide the elaborative processes that allow us to make sense of the social and physical world, these concepts are analytically distinct. An ontological approach to the human understanding of cause highlights reasons for the divergence between the manner in which the "ordinary person" attributes responsibility and assesses causality.

Perceptions of cause stem from human perception of the physical world. In such instances, an individual observes a "structured connection" between two objects in which motion is transferred from one object to another (Michotte, 1941, 1963). For example, if one individual pushes another individual and the latter individual falls

down to the ground, an observer will conclude the first individual physically caused the second individual to fall down via the acting of the push. Specifically, the physical force was transferred from the pusher to the individual who was pushed, causing him to fall.

On the other hand, attribution of responsibility organizes our social world, which includes our understanding of people and relationships. It goes beyond the question of mere cause and seeks to address whether or not the first individual should be held accountable for his actions. In addressing this issue, it becomes clear that cause and responsibility are closely interwoven, yet analytically distinct. For example, the observer may conclude the first individual, while physically causing the second to fall via the push, is not responsible for the fall.

A variety of mediating factors influence the manner in which responsibility is assigned where physical cause is present. In the preceding example, the observer's knowledge of the first individual's character may influence the responsibility assigned. Perhaps the individual's character is inconsistent with one who would intentionally try to injure another person. Alternatively, the events preceding the push could influence the manner in which responsibility is assigned. Perhaps the second individual who was pushed had been antagonizing the first individual and had engaged in physically aggressive behavior towards the first individual. Again, this may lead the observer to conclude the first individual is not responsible for the fall even though he is the physical cause of the fall.

This example identifies only two mediating factors of cause and responsibility. Because attribution of responsibility pertains to the social environment of humans, the list of possible mediating factors is endless. However, the example highlights the underlying claim: cause and responsibility are interconnected, yet distinct phenomenon of the human brain

Today, the most common forum for questioning, assigning, and disputing causality and responsibility is the legal system. Thomas Jefferson (1789) once noted in a letter to Abbe Arnoux that citizens "are not qualified to judge questions of law, but they are very capable of judging questions of fact." Implicit in this letter is Jefferson's view of the importance of incorporating the layperson's conception of accountability and responsibility into the everyday application of the law. For Jefferson, the ability of citizens to render judgment on their peers was a fundamental principle of a democratic society in that it grounded the law in the morals of the people. The Iowa State Bar Association recently added: "Thomas Jefferson called the jury process the best of all possible safeguards for the person, property and reputation of every citizen. It was, in fact, the verdict of courageous jurors that established the right to a free press in America, as well as countless other rights and privileges that most Americans now take for granted. Jurors keep law in the United States close to the people, preserving a guarantee of freedom and democracy that many in the world are still struggling to achieve" (2005).

Legal philosophers have embraced Jefferson's words arguing legal conceptualizations of causal attribution and responsibility rest upon the

understandings of the "ordinary person" (Lloyd-Bostock, 1979; Hart & Honore, 1961), meaning legal standards for attributing causal responsibility have roots within the fundamental understanding of cause and effect by the "person in the street." In today's deliberation rooms, verdicts are guided by jury instructions and human sense-making which rely upon the same standards Aristotle proposed centuries ago.

The importance of understanding how responsibility is attributed can not be over-stated. Recently, the National Safety Council's Injury Facts Report for 2005-2006 indicated over one-hundred million Americans sought medical attention for injuries resulting from accidents in 2003. Approximately, 110,000 of these injuries resulted in death. The total economic impact is estimated at $574.8 billion. This figure pertains only to direct costs associated with injuries and does not include legal costs associated with such injuries. Each injury invites and even necessitates the opportunity for individuals to determine causality and attribute responsibility or blame for such incidents.

. In the legal setting, a growing concern is the influence of extralegal factors. The preceding analysis of responsibility highlighted a small selection of mediating factors which can influence the attribution of responsibility. The listed examples primarily focused upon factors the individual consciously elaborates when apportioning responsibility. However, there are a variety of factors which may influence the individual outside of the conscious effort to elaborate the key facts of an incident. Contemporary literature has deemed these "extralegal factors."

Over the past fifty years, an extensive amount of literature has been devoted to an examination of the impact of extralegal factors on the jury decision-making process. Extralegal factors are those factors which lie outside the scope of what is deemed legally relevant to judgments of guilt and/or liability rendered in a particular case. Legal relevance is dictated by, among other things, the Federal Rules of Evidence, motions and limiting rulings by the judge and court-issued jury instructions. Examples of extralegal factors include attorney presentation style (Barge, Schlueter, & Pritchard, 1989; Hahn & Clayton, 1996; Spiecker & Worthington, 2003), judge nonverbal communication (Badzinski, 1994), participant attractiveness (Izzett & Leginski, 1974; MacCoun, 1990), knowledge of outcomes (Casper, Benedict, & Perry, 1989; Kamin & Rachlinski, 1995; LaBine & LaBine, 1996) and aggressiveness on the part of the attorney (Hahn & Clayton, 1996). While legal theory presumes jurors are influenced only by those elements formally presented at trial, extensive research has shown extralegal factors that are present at trial, but not formally presented, can have a considerable influence upon the jury decision-making process.

Extralegal factors have been a subject of great concern because of the active role they play in individual and group decision-making. Our legal system has established a framework intended to reduce the influence of these "extraneous" issues. This legal framework is applied in a variety of ways. Attorney presentations at trial are dictated by the Federal Rules of Evidence (in federal courts), which filter and structure the information provided at trial. Judges and attorneys attempt to

structure jury deliberations and verdicts by providing extensive jury instructions and lengthy verdict forms that often require juries to engage in an elaborate step-by-step process in order to reach a final verdict. However, research has shown that such efforts often fail to exclude extra-legal factors from the judgment process (Kamin & Rachlinski, 1995; Stallard & Worthington, 1998).

The failure to thwart the influence of extralegal factors can be attributed to a variety of issues. A cursory review of the literature on this subject matter reveals a general lack of consistent empirical research identifying such factors. Consequently, it becomes difficult to adopt measures to reduce the influence of extralegal factors when there is uncertainty as to what these factors are and how they are manifested.

The purpose of the present study is to identify the strength and influence of two extralegal factors when attributing responsibility: severity effects and personal choice. Specifically, this research will test the assumption that the severity of injuries sustained in an accident functions as an extralegal factor in determinations of liability. Previous work has indicated significant differences in the role of severity effects across accident type (Bornstein, 1998; Bovbjerg, Sloan, Dor, & Hsieh, 1991). This, in turn, has led to inconsistent data assessing the influence of severity effects. Consequently, it is more useful to examine the role of severity effects in particular legal contexts.

Bovbjerg, Sloan, Dor, and Hsieh (1991) argue that medical malpractice is a very distinct category of litigation when compared to other, more ordinary personal injury lawsuits involving automobile accidents and product liability. They contend

that medical malpractice cases exist as distinct phenomena because, as opposed to incidents such as an automobile accident, medical malpractice cases involve a lesser degree of control over situational elements. In instances of medical recommendations and/or procedures, because of the specialized knowledge required to make decision concerning these issues, victims are often at the mercy of the physicians to a much greater degree than the typical personal injury incident.

Additionally, Bovbjerg, Sloan, Dor, and Hsieh (1991) suggest that situational similarity may also at be at work in separating medical malpractice cases from other types of litigation such as automobile accidents. Specifically, they argue that "because nearly everyone has at some point made a mistake behind the wheel, jurors plausibly also empathize more with defendant drivers than with defendant doctors" (p. 9).

Finally, with an average of 1,200 medical malpractice claims appearing in state courts each year and average damage awards for plaintiffs just short of $500,000 (Cohen, 2004), a renewed focus on the factors that influence these jury verdicts provides valuable data for those involved. Identifying the influence of these two extralegal factors provides the groundwork for the development of strategies to cope with the influence of these factors at trial. An understanding of the manner in which they operate can influence both plaintiff and defendant case strategies at trial. This paper will conclude with recommendations for developing and implementing such strategies throughout the trial process.

Chapter Two will address the theoretical foundations of the current research. It will begin with an examination of the Elaboration Likelihood Model (ELM) as an explanation for the influence of extra-legal factors. Specifically, Chapter Two will argue the complexities of litigation undermine the motivation and/or abilities of jurors to cognitively process information at trial using the central processing route. Instead, jurors rely upon peripheral cognitive routes which favor the layperson's notion of cause and responsibility over that established within the legal system by evidentiary rules and jury instructions among other things. While these are not necessarily competing perspectives, the layperson's notion of cause and responsibility introduces additional variables which may not be accounted for by current legal standards. Consequently, this gap allows for the influence of extra-legal factors.

Following the discussion of ELM and peripheral processing, Chapter Two will introduce the human notion of cause as compared to that defined within in our legal system. It will then address the relationship between cause and responsibility in order to establish how human notions of cause and responsibility allow for the influence of extra-legal factors.

Finally, Chapter Two will address severity effects and electiveness as specific extra-legal factors which influence the attribution of responsibility within the context of medical malpractice and propose the research questions and hypotheses to be examined in this research. Severity effects will be discussed followed by electiveness. Prior research and findings on the influence of severity effects and electiveness will be analyzed.

# CHAPTER TWO: Literature Review

Over the past fifty years, an extensive amount of literature has been devoted to an examination of the impact of extralegal factors on the jury decision-making process. Examples cited previously include attorney presentation style (Barge, Schlueter, & Pritchard, 1989; Hahn & Clayton, 1996; Spiecker & Worthington, 2003), judge nonverbal communication (Badzinski, 1994), participant attractiveness (Izzett & Leginski, 1974; MacCoun, 1990), knowledge of outcomes (Casper, Benedict, & Perry, 1989; Kamin & Rachlinski, 1995; LaBine & LaBine, 1996) and aggressiveness on the part of the attorney (Hahn & Clayton, 1996). While legal theory presumes jurors are influenced only by those elements formally presented at trial, extensive research has shown extralegal factors that exist at trial, but not formally presented, can have a considerable influence upon the jury decision-making process.

*The Influence of Extra-legal Factors as a Function of Cognitive Route*

One possible explanation for the influence of extra-legal factors is provided by the Elaboration Likelihood Model (ELM). ELM, originally developed by Petty and Cacioppo (1977; 1981; 1986a; 1986b), suggests there are two possible routes for cognitively processing information. Each route affects the manner of change in one's attitude towards a message. The central route refers to a process "based on relatively extensive and effortful information processing activity aimed at scrutinizing and uncovering the central merits of the issue or advocacy" (Petty & Wegener, 1999).

This involves a primary focus on the substance of the actual message and the merits of that message. On the other hand, the peripheral route refers to attitude changes "based on a variety of low effort attitude change processes" (Petty & Wegener, 1999). These involve focus on cues other than the message itself as a means to evaluate the message. Examples of low effort attitude change processes include attitude changes resulting from the influence of source recognition, social desirability, message popularity or external rewards. Researchers of ELM argue persuasion can occur using either the central or the peripheral route (Petty, 1977; Petty and Cacioppo, 1981; 1986a; 1986b).

At the heart of ELM, lies the issue of motivating factors for cognitive processing routes. Researchers (Petty, 1977; Petty and Cacioppo, 1981; 1986a; 1986b; Petty & Wegener, 1999) of ELM contend the route through which information is processed by an individual is largely determined by the individual's motivation and/or ability to process the message. Within the setting of medical malpractice litigation, a juror's motivation and/or ability to process messages put forth by counsel for each party can be influenced by a variety of factors.

*Deference to the Peripheral Route*

For a layperson, of which most juries are constituted, the nature of information surrounding questions of medical malpractice can seem complicated and highly technical. Issues of liability, negligence, proximate cause, etc. tend to adopt legalistic standards and language which often make it difficult for the layperson to

immediately comprehend the issues in question. Additionally, jurors must cope with and sort through complex medical explanations and terminology offered by competing expert witnesses.

Research has shown the use of technical or complex language often lowers the message comprehension rate among an audience (Hovland, Janis, & Kelly, 1953; Ratneshwar & Chaiken, 1991). These findings are not surprising. Intuitively, this research identifies an obvious problem: as the obscurity/unfamiliarity of language increases, the ability to understand the message decreases. Consequently, as message comprehension among an audience decreases, persuasion or attitude change that does occur is likely the product of an on over-reliance upon peripheral cues.

Ratneshwar and Chaiken (1991) conducted a study with four conditions, producing results which corroborated the theory that message complexity can influence the cognitive route through which messages are evaluated. In this study, conditions varied along the lines of message comprehensibility and source credibility. Results indicated when the message had low comprehensibility, participants tended to cite the source credibility as a primary reason for the acceptance of the message. When the message had high comprehensibility, the message itself was cited as a primary reason for the participants' acceptance of the message. Hafer, Reynolds, and Obertynski (1996) conducted a similar study and also found that external cues such as source credibility tend to have greater influence among participants when the complexity of the message is high.

These findings are not surprising. It is human nature to simplify complex information in such a way as to make it manageable and accessible for attitude formation and change. In this instance, the message is simplified via reliance upon what is perceived as an authoritative source.

When complex messages are introduced, an individual is likely to identify peripheral cues that aid him or her in determining the message validity. This is a fundamental premise of many theories of legal communication involving responsibility attribution such as the story model (Pennington & Hastie, 1991; Pennington & Hastie, 1992; Bennett & Feldman, 1981), norm theory (Kahneman & Miller, 1986) and damage prototypes (Hart, Evans, Wissler, & Feehan, 1997; Greene and Bornstein, 2003).

ELM establishes a connection between issues of message comprehensibility at trial and the influence of extralegal factors. ELM proposes two routes by which messages are elaborated: central or peripheral. Low message comprehensibility increases the likelihood of peripheral message processing, creating the opportunity for jurors to be influenced by elements legal scholars argue are outside the scope of the issue in question. In a trial setting, a juror who cognitively processes information using the central route engages the evidence put forth by each side and evaluates the evidence against the applicable laws as dictated by the court, the attorneys and the jury instructions. This involves an extensive and effortful processing activity aimed at scrutinizing and uncovering the central merits of the case, in which the court-defined standards of causation and liability structure the manner in which the juror

understands the case and renders judgment upon the case. In this manner, the court defines the features of central route processing via the rules of evidence and jury instructions. Consequently, extra-legal factors, as defined by the court, would lie outside the scope of the central processing route.

Jurors influenced by extra-legal factors are more likely to process case-related information and render judgment using the peripheral route, which involves an over-reliance upon information not germane to the court-defined decision-making process. This is not to say that jurors using the peripheral route ignore the evidence and court instructions entirely. Instead, these jurors rely to a much greater extent on peripheral cues in order to form attitudes and beliefs about the case. This process can occur on a conscious level or subconscious level. Regardless, to argue a juror who relies on peripheral cues is "ignoring the law" would fail to account for that juror's perspective. Often, jurors who rely upon peripheral cues view their decision-making processes as quite rational.

*Reliance upon the Layperson's Notion of Cause and Responsibility*

In the context of medical malpractice litigation, the peripheral route often privileges the layperson's approach to elaborating causation over the court-defined standards. Layperson attributions of causation often diverge from strict legal definitions defining the standards of such attribution. This divergence has been the subject of extensive philosophical discussion. Legal philosophers have often argued that legal conceptualizations of causal attribution rest upon the understandings of the

"ordinary person" (Lloyd-Bostock, 1979; Hart & Honore, 1961), meaning legal standards for attributing causal responsibility have roots within the fundamental understanding of cause and effect by the "person in the street." The legal perspective recognizes, however, the "ordinary person" is often mistaken or misdirected in judgments surrounding attributions of causal responsibility for reasons ranging from emotive to psychological. Consequently, courts have adopted rigid definitions of causality for medical malpractice litigation. Each approach to addressing causation implicates the manner in which case information is psychologically structured by the individual juror.

An ontological approach to the human understanding of cause highlights reasons for the divergence between the manner in which the "ordinary person" attributes responsibility and the court-defined standards for such attribution. A recent study by Kruschke and Fragassi (1996) examined the efficacy of combining two very important philosophical and psychological works on human understanding of causation as a means to explain the "ordinary person's" approach to determining causation: David Hume's ontology of causation (1979) and Belgian psychologist Albert Michotte's psychology of causation (1941, 1963). A brief discussion of these two approaches provides a framework for explaining the divergence of the layperson's attribution of responsibility from that preferred by the courts.

Hume argued "impressions of causality are mere fabrications of a sophisticated mind" (Kruschke and Fragassi, p. 441), in which the individual observes a relationship between two objects but is unable to observe causality itself. Hence,

the impression of causality arises out of the individual's projection of a mental connection on to the physical objects- not from an inherent bond between the two objects. As Kruschke and Fragassi explain, "a sentiment of feeling that events are necessarily connected arises during the observation of a succession of events- a feeling which is transferred to the events themselves" (p. 441).

Hume (1739) argued this feeling is "engendered by constant conjuncture or regular sequence" and stems from learned knowledge of causal connections. More importantly, Hume's theory of human understanding of causation recognizes the implications of human thought imposed upon the external world. Hume classified causation as type of "feeling." This reduction suggests attributions of causality are subject to the influences and constraints of our psyches including those that are emotive, impulsive, and reductive. Consequently, these confounding influences create space for divergence in human understanding of causation.

Michotte (1941, 1963), responding to Hume's theory of causation, argued "the impression of causality is a spontaneous perceptual gestalt which is neither learned nor an interpretation via abstract knowledge of physical events," in which the "essence of perceived causality is ampliation of motion" (Kruschke and Fragassi, p. 443). Michotte described ampliation as a transference. Kruschke and Fragassi employ the example of a game of pool in order to explain ampliation. As a cue-ball rolls across the table and strikes the eight-ball, the motion of the cue-ball is perceptually transferred to the eight-ball. Michotte differs from Hume in that he believes humans possess an innate ability to identify or impose ampliation as opposed

Hume's suggestion that it is a learned trait. Michotte's notion of ampliation is important because it identifies an inherent human ability to observe what Phares and Wilson (1972) refer to as a "structured connection" between two entities that allows an individual to draw conclusions regarding causality.

Michotte's notion of ampliation, in conjunction with Hume's characterization of perceptions of cause as "feelings" stemming from learned knowledge demonstrates how the philosophical conceptualization of human perception of cause parallels the implicit legalistic or scientific conceptualizations while still incorporating the "irrational" element of human attribution. In these instances, the individual is able to recognize a structured connection between two things. The individual then imposes upon that structured connection "feelings" and "learned knowledge" that allows the individual to conclude a causal connection exists.

The notion of "irrational" human attribution of responsibility is further addressed by Heider (1983). Heider (1983) argued attributions of cause pose limitations when applied in a social environment due to the failure to account for the influence of the human psyche. This limitation is indicated in Heider's concern regarding the distinction between human perception of the physical world and human perception of the social world (Harvey, 1993). Causality concerns an individual's observation of the physical world while responsibility addresses the individual's ability to make sense of that physical world.

Heider (1983), in his dissertation *Thing and Medium*, focused on the importance of environmental conditions in making the perception of objects possible.

In his later works, Heider applied this focus to the perception of self and others. Heider believed humans possessed the ability to make causal inferences. However, when drawing causal inferences in a social environment, an individual is inundated with sensory information. Consequently, the individual looks for a means to organize and make sense of this information. As a result, these causal inferences operate in conjunction with the individual's perception of environmental and social conditions in allowing that individual to translate the identification of a cause into the attribution of responsibility (Harvey, 1993). Examples of environmental and social conditions focus primarily upon interpersonal relationships.

For example, in the instance of medical malpractice, the social understanding of what it means to be a "physician" imposes expectations and characteristics associated with that social role. The same is true for social understandings of what it means to be a "patient." While conceptualizations of these roles are not static, they are temporally linked to our cultural understandings. For instance, the past decade has witnessed a resurgence of focus on the importance of patient responsibility. Consequently, this may lead individuals to define the role of a "patient" in such a way that imposes greater responsibility on the patient to make informed choices.

The following situation provides an example of how the theories of Hume, Michotte and Heider may work in conjunction as an individual attempts to attribute cause and responsibility to an incident within the medical setting.

A healthy individual visits a physician to have a surgery performed. During the course of the surgery an artery is ruptured and the individual bleeds to death.

Michotte would argue a layperson can recognize a natural "structured connection" between the actions of the physician and the outcome of the surgery. The individual was healthy prior to the surgery, which isolates pre-surgery events as an unlikely cause of the rupture. The physician, as the primary actor during the surgery, has a direct connection to the results of those actions, making him a more likely source of the problem. Consequently, the physician intuitively becomes a natural target for attributions of causality.

Additionally, several extra-legal factors may influence attributions of responsibility. The fact that the incident happened immediately after the doctor began the surgery creates the opportunity for a post-hoc fallacy. Knowledge of the severity of this particular outcome allows the trier of fact, with the privilege of hindsight, to conclude the physician should have been more careful in performing the surgery. This hindsight bias may be magnified by the social expectations cast upon the role of the physician, such as claims that it is the physician's responsibility to thoroughly review and analyze each possible complication throughout the course of the surgery.

Furthermore, if during trial, the same physician exhibits characteristics of a clumsy or careless individual, the trier of fact, drawing upon his knowledge of the implications of being clumsy or careless, will generate stronger "feelings" in regards to the physician being a likely cause of the patient's death.

On the other hand, if the surgery was elective, the trier of fact may conclude, because the surgery was not required and the patient chose to have it anyway, the

patient took on risks for which he was responsible. Regardless, this example highlights how extra-legal factors may produce strong feelings among jurors that correspondingly shape attitudes and opinions of the causal source.

*Injury Severity as an Extra-legal Factor*

In order to rectify the dilemma in which jurors draw upon extralegal factors in a determination of liability, our legal system has established a framework intended to reduce the influence of these extraneous issues. This legal framework is applied in a variety of ways. Attorney presentations at trial are limited by the Federal Rules of Evidence (in Federal courts), which filter and structure the information provided at trial. Judges and attorneys attempt to structure jury deliberations and verdicts by providing extensive jury instructions and lengthy verdict forms that often require juries to engage in an elaborate step-by-step process in order to reach a final verdict. However, research has shown that such efforts often fail to exclude extra-legal factors from the judgment process (Kamin & Rachlinski, 1995; Stallard & Worthington, 1998).

One area in particular that has received some recent attention has to do with the influence of injury severity in personal injury lawsuits. Research (Walster, 1966; Bornstein, 1998; Feigenson, N., Park, J., & Salovey, P, 1997; Phares & Wilson, 1972; Robbennolt, 2000) has shown there is a strong relationship between the severity of injuries sustained in an accident and the amount of responsibility one attributes to the parties involved in the accident. Specifically, it has been found, as

the severity of injuries increases, so to does the amount of responsibility assigned to those involved in the incident (Walster, 1966).

In some ways, the impact of severity effects is similar to the phenomenon known as hindsight bias. Feigenson (2000) defines hindsight bias as "the tendency to overestimate the probability of a known outcome and the ability of decision makers to have foreseen it" (p. 62). In examining the effects of hindsight bias, Fischhoff (1975) found the knowledge of a specific outcome in an incident led to an over-determination of the likelihood such an outcome would occur in the first place. Hindsight bias becomes especially problematic in the legal setting where, as Kamin and Rachlinski (1995) have noted, jurors are essentially asked to make after the fact judgments about before the fact probabilities.

The standard negligence case requires the presence of four elements: (1) the defendant had a duty to the plaintiff; (2) the defendant breached that duty; (3) the breach caused (4) injury or harm to the plaintiff. The key element of this approach to a determination of negligence has to do with proving the defendant caused the injury as a result of a breach of his or her duty. Knowledge of the actual outcome should have no bearing upon considerations as to whether or not the defendant breached industry standards. However, numerous studies (Casper, Benedict, & Perry, 1989; Kamin & Rachlinski, 1995; LaBine & LaBine, 1996) have shown this is simply not the case. Instead, jurors tend to be impacted by specific knowledge of outcomes in an incident, thereby making it an extralegal factor.

The similarities between hindsight bias and severity effects have to do with the fact that they are both dependent upon knowledge of the outcome when it comes to determinations of liability. Whereas hindsight bias simply addresses the issue of whether or not knowledge of the outcome is present, studies of severity effects go a bit further in examining how knowledge of different possible outcomes can impact determinations of liability.

A variety of mediating factors have been proposed to account for the relationship between injury severity and judgments of liability. In finding a significant positive relationship between the severity of injuries sustained in accidents and the amount of responsibility or blame associated with the victim, Walster (1966) suggested defensive attribution occurs. Defensive attribution occurs when observers feel inclined to differentiate themselves from the victims of accidents, reasoning that, as injury severity increases, it becomes more and more unpleasant to acknowledge such accidents could also happen to the observer. Consequently, observers will look for means by which they can associate blame with the victim, thereby, differentiating themselves from the victims of the accident. This phenomenon is often referred to as "victim blaming." It functions as defensive mechanism, offering the observers a certain degree of comfort in knowing, because they are different from the victim in question, the same accident is unlikely to occur with them.

In a re-examination of Walster's (1966) research, Shaver (1970a) tested the underlying assumptions of the theory of defensive attribution. Shaver (1970a) argues a necessary prerequisite to blaming the victim is the belief in the possibility that this

kind of accident could occur to the perceiver. The presence of this belief is premised upon two elements: (1) situational similarities; and (2) personal similarities. Shaver (1970a) devotes most of her focus to the element of personal similarity, emphasizing it as the primary element since defensive attribution principally involves differentiating oneself from the actor involved in an accident. Implicit in the emphasis on personal similarities over situational similarities is the notion that questions of agency lie at the heart of any instance of defensive attribution. This notion makes intuitive sense in the context of defensive attribution given one is likely to have greater control over personal attributes than situational attributes. A focus on situational aspects would seem to inherently decrease the amount of personal control one has over the events for it places the individual at the mercy of the situation, thereby increasing the likelihood of chance occurrences.

Shaver (1970a) was unable to replicate Walster's (1966) findings concerning the relationship between outcome severity and attribution of responsibility. However, Shaver (1970a) did find there was a significant relationship between perceived personal similarity and attributions of responsibility. Specifically, she found greater perceptions of similarity between the victim of the accident and the observer led the observer to be more lenient in terms of judgments of responsibility. These findings are consistent with a theory of defensive attribution, suggesting when the observer is unable to differentiate him or herself from the victim of the accident, (s)he is less willing to attribute fault for the accident to the victim.

The reason for such an occurrence is explained by Vidmar and Crinklaw (1974, p. 114): "People need to believe that serious accidents could never happen to them, or if they could, that no one would ever blame them for the consequences." This would lead us to believe that, in instances where there are perceived similarities between the victim of an accident and the observer, the observer is more likely to attribute the fault to some one other than the victim.

Lerner (1965) proposed the Just World theory to explain why responsibility attribution increases as the severity of an injury mounts. Andre and Velasquez (1990) explain the Just World Theory stating "people have a strong desire or need to believe that the world is an orderly, predictable, and just place, where people get what they deserve. Such a belief plays an important function in our lives since in order to plan our lives or achieve our goals we need to assume that our actions will have predictable consequences. Moreover, when we encounter evidence suggesting that the world is not just, we quickly act to restore justice by helping the victim or we persuade ourselves that no injustice has occurred."

The psychological mechanism behind the Just World Theory influences the manner in which responsibility is assigned. It highlights the need to clearly identify a source of harm as the severity of injury increases. This may occur either by focusing on the actions of the victim and how they contributed to the injury or by focusing on external factors as independent causes of the injury. Regardless of the focus, the need to assign responsibility lingers due to the psychological implications of accepting the randomness of such events.

Another theory (Lupfer et al, 1985) has suggested there is simply an anti-plaintiff bias at work as opposed to an issue of victim-blaming. This, in part, can be explained by the fact that jurors tend to underestimate the extent to which the behavior of a trial's participants is shaped and constrained by the roles that they play. Lupfer et al (1985) conducted a study which found, because of factors such as the aggressiveness and greater insistence which naturally exist in the presentations of the plaintiff due to the burden of proof, there exists an anti-plaintiff bias which ultimately leads to more verdicts in favor of the defendant. Lupfer et al (1985) argue this occurs simply because jurors tend to attribute this aggressiveness and insistence to dispositional characteristics of the actual plaintiff.

An alternative explanation has been suggested by Bornstein (1998). Bornstein found that, contrary to the theories proposed by Walster (1966) and Lupfer et al (1985), there is a greater tendency to find for the victim as injury severity increases in legal disputes involving personal injuries. In order to explain this relationship, Bornstein draws upon general psychological theories of emotional responses to suffering. Research (Batson, Fultz, & Schoenrade, 1987) has indicated humans tend to respond to the suffering and/or emotional distress of others with a desire to help them. In the legal context, this translates into a desire among jurors to find for the victim, regardless of knowledge of the circumstances that led to the injury.

In his research, Bornstein links jurors' knowledge of injury severity to a desire to help the victim by drawing upon a theory of action readiness (Frijda, 1987; Frijda, Kuipers, & ter Schure, 1989). Frijda et al (1989) argue action readiness is an

essential element of this process because it is what links experience to behavior. Here, the experience of emotional distress and/or suffering is important only to the extent of how it impacts the individual observer. A theory of action readiness suggests various emotional responses are linked to corresponding behaviors. For example, the emotion of fear tends to lead to the behavior of avoidance of the stimulus leading to fear. In the context of injury severity, the observer's emotional response is linked to a desire to take action that helps the victim.

Bornstein highlights the importance of action readiness by suggesting its implications for scenarios in which a relationship between injury severity and responsibility attribution may exist. Specifically, he argues the tendency to find for the victims of accidents will only occur in instances in which the juror has the ability to award damages. In legal disputes involving claims of personal injury, the only way in which jurors can "help" the victim is by awarding damages. Without this capacity, the inability to act upon the observation of emotional distress and/or suffering will counteract a desire to find for the victim. Therefore, Bornstein adopts a research design that accounts for conditions in which the jurors may or may not have the ability to award damages. The results supported the theory that the positive relationship between injury severity and responsibility attribution is mediated by the jurors' ability to award damages.

Shaver (1970b) offers further support for this theory, arguing it is a product of the Western legal tradition to clarify responsibility for an incident in order to resolve the situation by awarding compensation and assigning punishment. This theory

argues against that of Walster's (1966) claiming it is not the need to defend against the idea that such an incident could happen to the observer that leads to greater attribution of responsibility. Instead, it is simply the need to move towards resolution.

Each of the previous theoretical discussions has offered its own valuable insights regarding the nature of the relationship between the severity of injuries sustained in an accident and attributions of responsibility. Unfortunately, findings across the literature have been largely inconsistent. In contrast to the statistically significant findings of the research identified so far (Walster, 1966; Bornstein, 1998; Feigenson, N., Park, J., & Salovey, P, 1997; Phares & Wilson, 1972; Robbennolt, 2000), other research has found no such relationship (Cather, Greene, & Durham, 1996; Green, 1968; Shaver, 1970a; Shaw & McMartin, 1977; Thomas & Parpal, 1987). Even later research by Walster (1967) failed to replicate the findings of her original study.

There have been many attempts to explain the disparities in findings across these studies. Robbennolt (2000) suggests one area of concern lies in the operationalization of "responsibility." In an examination of responsibility attribution, Heider (1958) identified five levels of responsibility: (1) association, where a simple connection to the incident is all that is required; (2) causality, where it is shown that the individual being blaming was the necessary precondition for the incident; (3) foreseeability, which suggests that the individual being blamed could have anticipated the outcome; (4) intention on the part of the individual being blamed and; (5)

justification, which leads to attributions of less responsibility because of environmental factors that may have led to the incident.

Robbennolt (2000), in conducting a meta-analysis of the literature that has been published in the area of severity effects, concludes several studies have adopted varying approaches to understanding responsibility, consequently, leading to varying results. Bornstein (1998) further supports this indictment suggesting responsibility, while related to the legal concept of liability, is not the same as liability. For example, many liability and negligence lawsuits incorporate the element of industry standards or standard of care in determinations of liability. These elements are legally relevant but not common to everyday attributions of responsibility for accidents outside of the legal setting.

In addition to definitions of responsibility, Bornstein (1998) suggests the presence and/or strength of severity effects tends to vary across different types of legal cases. Bovbjerg, Sloan, Dor, and Hsieh (1991) further support this view in their analysis of differences between "deep pocket" cases such as medical malpractice and ordinary personal injury lawsuits such as automobile accidents. This could be explained in part by the element of situational similarity mentioned in Shaver's (1970a) breakdown of the belief in the possibility that the injury/accident could occur to the observer. Some accidents are more situationally similar to those the jurors find themselves in, leading to inconsistent degrees of the outcome severity/responsibility attribution relationship.

Finally, studies by Shaw and Sulzer (1964) suggest responsibility attribution as related to injury severity may be mediated by the ambiguities surrounding the "structured connection" between the individual and the incident. This theory argues it is easier for individuals to attribute greater responsibility as injury severity amounts in situations where there is a clear connection between the individual and the incident. On the other hand, it is natural for individuals to be hesitant in assigning blame in situations where there is doubt as to whether or not the individual can be linked to the incident.

The purpose of the present study is to test the theory that the severity of injuries sustained in an accident will function as an extralegal factor in determinations of liability. Previous works indicate differences in the role of severity effects across accident type (Bornstein, 1998; Bovbjerg, Sloan, Dor, & Hsieh, 1991). This may explain the presence of such mediating factors as anti-plaintiff bias, victim-blaming, and victim-defense. Consequently, it is more useful to examine the role of severity effects in particular legal contexts. Specifically, this study will look at the role of severity effects in medical malpractice litigation and attempt to resolve many of the competing perspectives of how the relationship between injury severity and responsibility attribution functions. In doing so, it will pose two research questions:

*Research Question #1:* What is the relationship between the severity of injuries sustained by a patient during a medical procedure and the degree of responsibility attributed to the physician?

*Research Question #2:* What is the relationship between the "electiveness" of the medical procedure and the degree of responsibility attributed to the physician for injuries sustained by the patient during the medical procedure?

*Electiveness as an Extra-legal factor*

Bovbjerg, Sloan, Dor, and Hsieh (1991) argue that medical malpractice is a very distinct category of litigation when compared to other, more ordinary personal injury lawsuits involving automobile accidents and product liability. This difference is premised upon two factors: (1) the victim's control over the situation and (2) situational similarity.

Bovbjerg, Sloan, Dor, and Hsieh (1991) contend that medical malpractice cases exist as distinct phenomena because, as opposed to incidents such as an automobile accident, medical malpractice cases involve a lesser degree of control over situational elements. In instances of medical recommendations and/or procedures, because of the specialized knowledge required to make decision concerning these issues, victims are at the mercy of the physicians to a much greater degree than the typical personal injury incident. Consequently, adopting this viewpoint, one would be led to the conclusion, that jurors are more likely to find physicians liable as the severity of the injuries sustained increases.

In addition to the element of the victim's control over the situation, Bovbjerg, Sloan, Dor, and Hsieh (1991) suggest that situational similarity may also at be at work in separating medical malpractice cases from other types of litigation such as automobile accidents. Specifically, they argue that "because nearly everyone has himself at some point made a mistake behind the wheel, jurors plausibly also empathize more with defendant drivers than with defendant doctors" (1991, p. 33).

This would be consistent with Shaver's (1970a) analysis because, once the shift of focus to the physician occurs, the observer is likely to perceive lesser degrees of similarity between him or herself and the physician in question. If we accept the assumptions of the Just World Theory, this differentiation would then allow the observer or juror to attribute greater responsibility for the injuries to the physician.

Furthermore, numerous studies have shown that the quality of care alone is a poor predictor of the likelihood of medical malpractice lawsuits (Bernstein, 1987; Herbert, 1986; Brennan, Leape, Laird, et al, 1991; Localio, Lawthers, Brennan et al, 1991). These startling revelations heighten the need to examine the influence of extralegal factors within the context of medical setting so that we may begin to understand the factors that shape perceptions of medical malpractice.

Drawing upon previous studies, this research will test two hypotheses:

H1: As the severity of injuries sustained by a patient in a medical procedure increases, the amount of responsibility for the injuries attributed to the physician will also increase.

H2: The degree of responsibility for the injuries sustained by a patient during a medical procedure that is attributed to the physician will be significantly lower in instances where the medical procedure is perceived as "elective."

Responsibility will be defined by the standards most commonly used in contemporary lawsuits involving claims of medical malpractice. Specifically, medical malpractice litigation draws upon the concept of negligence. Boumil and Elias (1995) indicate that negligence is composed of four elements: (1) the actor owes a duty of care to another; (2) the applicable standard for carrying out the duty is

breached; (3) the breach of duty causes a compensable injury; and (4) there are compensable damages or injuries to the plaintiff.

Adopting this conceptualization of negligence, the duty is established by the nature of the professional relationship. In the instance of medical malpractice, the physician has a duty because of his or her role as the patient's caregiver. Boumil and Elias (1995) indicate that the standard of care clause is "based upon what a 'reasonable practitioner' would do in like circumstances. The standard is not one of excellence or superior practice; it only requires that the physician exercise that degree of skill and care that would be expected of the average qualified practitioner" (p. 24-25).

Finally, the actions of the defendant must be causally related to the harms or injuries identified by the plaintiff. Here, Boumil and Elias (1995) isolate two standards for determining causation: cause-in-fact and proximate cause. Cause-in-fact is explained as instances in which the "injury to the plaintiff would not have occurred 'but for' the defendant's wrongful act, or if injury to the plaintiff was a foreseeable result of the defendant's act" (1995, p. 116). Proximate cause, on the other hand, refers to, taking all issues into consideration, whether or not the actions of the defendant have some causal connection to the injuries sustained by the plaintiff. Here, the actions of the defendant may not be the only cause. However, it is clearly established as one of the causes.

# CHAPTER THREE: Methodology

*Overview of study*

The purpose of this study was to examine the influence of injury severity and the electiveness of a medical procedure on the apportionment of responsibility attributed to the physician and patient in instances of medical malpractice. Consequently, this study adopted a 2X2 research design. Conditions varied based upon injury severity and the electiveness of the medical procedure.

The premise of each scenario involved an individual who had an abnormal growth behind his ear which was identified by physicians as a benign tumor. In each scenario, a medical procedure was performed to remove the tumor. During the course of the surgery, the physician improperly implanted a needle used to administer a local anesthetic into the upper portion of the patient's neck and cheek area. This resulted in irreversible damage to the patient's facial nerve.

The injury severity condition contained a low severity condition, in which the patient suffered a slight facial distortion, which becomes apparent to others only when he smiles and a high severity condition, in which the patient suffered a facial distortion that causes his face to droop on one side which gives him the appearance of having a deformation. In the high severity condition, the patient believes the deformity radically alters his appearance to others in a very negative way, which has caused him to lose many friends (including his fiancé) and feel alienated in public.

The elective conditions contained a non-elective procedure, in which the patient had to undergo the surgery in order to prevent permanent hearing loss and

severe, acute pain throughout the left side of his face, and; an elective procedure, in which the procedure was not medically necessary. In other words, the presence of the tumor posed no medical danger to the patient. In each of the elective scenarios, the patient chose to undergo surgery for cosmetic reasons. Specifically, he felt the presence of the tumor negatively impacted his appearance to others.

The severity and electiveness conditions produced four scenarios: elective-serious, elective-minor, non-elective-serious, non-elective-minor.

*Procedure*

Participants in each of the conditions received a booklet containing a randomly-assigned scenario involving an incident of medical malpractice. Each scenario consisted of approximately two pages in length. After reading about the incident, participants were asked to complete a questionnaire addressing their reactions to the incident. This questionnaire provided participants with three options: assign a percentage of responsibility to the patient, assign a percentage of responsibility to the physician or indicate "no one was responsible." Following each option, participants were asked to explain why responsibility was apportioned in that manner.

In addition to the assignment of responsibility, participants were asked to rate the severity of the injuries sustained by the patient using a seven-point Likert scale. A similar scale was used to assess participant perceptions of the electiveness of the surgery.

Participants responded to a series of questions addressing attitudes and experiences associated with instances of medical malpractice. The purpose of these sections was to identify potential confounding variables which may have influenced the manner in which responsibility was assigned. First, participants' experiences with their own physicians were assessed. The purpose of this section was to test for the influence of participants' personal experiences with physicians and if such experiences influenced the manner in which responsibility is apportioned in scenarios used in this research.

Participants were asked to indicate if they were currently seeing a physician for an ongoing health condition. Additionally, they were asked if they have a physician they see regularly or prefer to see for health related issues. Finally, the Patient-Doctor Interaction Scale (Smith, 1983; Bowman, Herndon, Sharp, & Dignan, 1992) was adopted to assess participants' perceptions of their relationship, communication, and experiences with their own physicians.

In addition to participants' personal experiences with health care, participants' attitudes towards health care in general were assessed. Participants were asked a variety of questions intended to reveal their attitudes towards the quality of health care in our country. These included questions such as "how would you rate the quality of care provided by our nation's healthcare system" and "do you think the quality of care provided by our nation's healthcare system has gotten better, worse or stayed the same in the past five years."

Finally, participants' attitudes towards the legal system were assessed. This included questions such as "what percentage of medical malpractice lawsuits do you think are justified," do you believe there are far too many frivolous lawsuits today," and "do you believe people these days are always trying to blame others for their misfortune." The purpose of these questions was to examine what influence, if any, participants' attitudes towards the legal system influenced the manner in which they assigned responsibility in the scenarios.

*Materials*

The fact pattern used for this study was derived from that used in earlier studies conducted by Feigenson, Park and Salovey (1997) and Vidmar et al (1994), which involved a scenario in which a patient was found to have developed a cyst behind his ear. For the purpose of this research, Feigenson, Park and Saloveys' basic scenario was altered to reflect a fact pattern more consistent with the type a jury might hear in the courtroom. The original scenario provided very little detail. Changes included the addition of a detailed description of the problem (the cyst was changed to a tumor in this research) and the corresponding implications. A description of the patient's relationship and communication with the physician was provided. Finally, greater detail regarding the resulting injuries was provided. Each of the scenarios can be found in appendixes A (elective-serious), B (elective-minor), C (non-elective-serious), and D (non-elective-minor).

The materials provided to participants indicated that their determinations should only be concerned with attribution of responsibility and would have no bearing upon any form of compensation the patient may or may not receive.

The Patient-Doctor Interaction Scale (Smith, 1983; Bowman, Herndon, Sharp, & Dignan, 1992) was included in each questionnaire in order to assess participants' personal health care experiences.

Additionally, the questionnaire contained sections pertaining to the participants' attitudes towards the legal system and health care in general. These questions were adopted from the Tsongas Litigation Consulting, Inc. 1993 Northwest Juror Attitude Research project.

The complete questionnaire is provided in Appendix E.

*Participants*

One hundred and eleven undergraduate students from the University of Kansas, Lawrence, Kansas, participated in this study during the 2006 summer sessions. Students participating in the research received course credit for COMS 130: Speaker-Audience Communication. Participants were randomly assigned to one of four conditions: elective-serious, elective-minor, non-elective-serious, non-elective-minor. All participants provided informed consent.

*Pilot study*

Fifty-seven undergraduate students from the University of Kansas, Lawrence, Kansas, participated in this study during the 2006 summer sessions. Participants were

randomly assigned to one of four conditions: elective-serious, elective-minor, non-elective-serious, non-elective-minor.

The data were used to assess the validity of each of the conditions. Conditions A and C constituted the severe injury condition while groups B and D constituted the minor injury category. Conditions A and C contained a total of twenty-nine participants while conditions B and D contained a total of twenty B participants.

In each of the four conditions, participants were asked to assign a value on a Likert scale between one and seven for injury severity. One indicated low severity and seven indicated high severity. The mean score for conditions A and C was 5.79. The lowest value assigned in these conditions was four. The means score for conditions B and D was 4.36. The lowest value assigned in these conditions was one. Statistical comparisons between conditions A and C and conditions B and D (using Student's T) produced a test statistic of 4.08, which produced a P-value close to 0. Additionally, conditions B and D appear to have a fairly normal distribution while conditions A and C have an asymmetrical distribution weighted towards the upper end of scoring choices. Finally, the standard deviation for conditions B and D is over one-half of a point higher than the standard deviation for conditions A and C.

In the pilot study, conditions A and B constituted the elective surgery condition while conditions C and D constituted the non-elective surgery category. In each of the four conditions, participants were asked to assign a value between one and seven indicating the degree to which he/she believed the surgery to be elective or

non-elective. One indicated non-elective and seven indicated elective. The mean score for conditions A and B was 6. The means score for conditions C and D was 2.03. Statistical comparisons between conditions A and B and conditions C and D (using Student's T) produced a test statistic of 11.4, which produces a P-value close to 0.

In sum, the experimental variation of the conditions proved to be successful. The data from the pilot study was included in the study findings.

# CHAPTER FOUR: Results

Four conditions were examined in this study. Condition A represented the high severity, elective condition. Condition B represented the low severity, elective condition. Condition C represented the high severity, non-elective condition. Condition D represented the low severity, non-elective condition. A total of one-hundred and eleven participants provided questionnaire responses.

*Reliability of the conditions*

Descriptive statistics and one-way ANOVA supported pilot study findings regarding differences in respondents' perceptions of elective and non-elective surgery. Respondents were asked to rate the extent of the electiveness of the procedure on a seven-point Likert Scale. Low scores indicated non-elective and higher scores indicated elective. The mean score for respondents' perception of electiveness in the non-elective conditions was 2.55. The elective conditions produced a mean score of 6.2. Group comparisons confirmed statistically significant differences in perceptions of electiveness between groups ($F=146.43$, $p=.00$).

Additionally, descriptive statistics and one-way ANOVA supported pilot study findings regarding differences in respondents' perceptions of the high and low severity conditions. Respondents were asked to rate the extent of the severity of the injury sustained on a seven-point Likert Scale. Low scores indicated low severity and higher scores indicated high severity. The mean score for the low severity condition

was 4.2, while the mean score for the high severity condition was 5.88. Group comparisons confirmed statistically significant differences in perceptions of injury severity between groups (F=42.66, p=.00). Additionally, the minimum severity rating assigned by a respondent in the low severity condition was 1 while the minimum severity rating assigned by a respondent in the high severity condition was 3.

*Results*

The descriptive statistics for each of the conditions are provided in table 1. "Joe" and "Davis" refer to the amount of responsibility assigned to each respectively. "Severity" refers to the participant perceptions of severity based upon a seven-point Likert scale. "Elective" refers to the participant perceptions of the "electiveness" of the surgery based upon a seven-point Likert scale.

**Table 1: Descriptive statistics for each condition (Joe=patient; Davis=physician)**

| Condition | | Joe | Davis | Severity | Elective |
|---|---|---|---|---|---|
| A | Mean | 27.71 | 65.14 | 5.86 | 6.54 |
| | N | 28 | 28 | 28 | 28 |
| | Std. Deviation | 26.853 | 31.597 | 1.079 | .744 |
| B | Mean | 27.96 | 64.63 | 4.22 | 5.85 |
| | N | 27 | 27 | 27 | 27 |
| | Std. Deviation | 26.358 | 31.253 | 1.672 | 1.680 |
| C | Mean | 16.11 | 76.75 | 5.82 | 2.64 |
| | N | 28 | 28 | 28 | 28 |
| | Std. Deviation | 17.413 | 27.430 | 1.249 | 1.850 |
| D | Mean | 17.68 | 71.61 | 4.18 | 2.46 |
| | N | 28 | 28 | 28 | 28 |
| | Std. Deviation | 22.709 | 33.390 | 1.442 | 1.795 |
| Total | Mean | 22.32 | 69.58 | 5.03 | 4.36 |
| | N | 111 | 111 | 111 | 111 |
| | Std. Deviation | 23.932 | 30.975 | 1.587 | 2.419 |

Table 2 identifies the number of participants in each condition who selected "no one was responsible."

**Table 2: Number of participants in each condition who selected "no one was responsible"**

| Condition | "No one was responsible" |
|---|---|
| A | 2 |
| B | 2 |
| C | 2 |
| D | 3 |

The distribution of respondents who indicated "no one was responsible" among each of the conditions did not reveal any patterns or significant differences between conditions based upon this response. Consequently, for the remaining analysis, the data provided by these respondents were excluded. The descriptive statistics excluding data from participants who indicated "no one was responsible" are shown in table 3.

**Table 3: Descriptive statistics for each condition excluding data from respondents who selected "no one was responsible"**

| Condition | | Joe | Davis | Severity | Elective |
|---|---|---|---|---|---|
| A | Mean | 29.85 | 70.15 | 5.81 | 6.50 |
| | N | 26 | 26 | 26 | 26 |
| | Std. Deviation | 26.695 | 26.695 | 1.096 | .762 |
| B | Mean | 30.20 | 69.80 | 4.24 | 5.76 |
| | N | 25 | 25 | 25 | 25 |
| | Std. Deviation | 26.120 | 26.120 | 1.739 | 1.715 |
| C | Mean | 17.35 | 82.65 | 5.77 | 2.77 |
| | N | 26 | 26 | 26 | 26 |
| | Std. Deviation | 17.468 | 17.468 | 1.275 | 1.861 |
| D | Mean | 19.80 | 80.20 | 4.32 | 2.56 |
| | N | 25 | 25 | 25 | 25 |
| | Std. Deviation | 23.161 | 23.161 | 1.464 | 1.850 |
| Total | Mean | 24.28 | 75.72 | 5.05 | 4.40 |
| | N | 102 | 102 | 102 | 102 |
| | Std. Deviation | 23.989 | 23.989 | 1.582 | 2.373 |

Table 4 shows the tests of between subject effects upon the responsibility attributed by participants to Dr. Davis. The results indicate a significant effect for the elective conditions ($p = .016$) and a lack of significance for the severity conditions ($p = .765$). Finally, the results indicate a lack of significant interaction between the electiveness and severity conditions ($p = .823$).

**Table 4: Tests of between-subject effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 3433.486[a] | 3 | 1144.495 | 2.051 | .112 | .059 |
| Intercept | 584314.942 | 1 | 584314.942 | 1047.020 | .000 | .914 |
| Elective | 3341.828 | 1 | 3341.828 | 5.988 | .016 | .058 |
| Severity | 50.236 | 1 | 50.236 | .090 | .765 | .001 |
| Elective * Severity | 28.103 | 1 | 28.103 | .050 | .823 | .001 |
| Error | 54691.269 | 98 | 558.074 | | | |
| Total | 642877.000 | 102 | | | | |
| Corrected Total | 58124.755 | 101 | | | | |

a. R Squared = .059 (Adjusted R Squared = .030)

Hypothesis one predicted the amount of responsibility attributed to the physician would increase as the severity of injuries sustained in a medical procedure increased. The data did not support this hypothesis.

Hypothesis two predicted the degree of responsibility for the injuries sustained in the medical procedure that was attributed to the physician would be significantly lower in instances where the medical procedure was perceived as "elective." The data supported hypothesis two.

Additional analysis was conducted to examine the nature of the relationship between the predictor in hypothesis two (electiveness) and the responsibility attributed to Dr. Davis. In addition to the categorical data based upon the four conditions in this research, participant perceptions of electiveness were examined as a second-level predictor of responsibility attribution. Both the conditions and perceptions of the electiveness within the conditions were regressed against the responsibility attributed to Dr. Davis by entering the variables into the regression equation sequentially as block effects. The categorical data was entered first and

participant perceptions of the electiveness were entered second. Tables 5 shows the model summary for the regression analysis measuring participant perceptions of electiveness as a sequential block effect.

**Table 5: Model summary for regression analysis using perceptions of electiveness as sequential block effects including beta coefficients**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .240[a] | .058 | .048 | 23.403 | .058 | 6.126 | 1 | 100 | .015 |
| 2 | .263[b] | .069 | .051 | 23.375 | .012 | 1.242 | 1 | 99 | .268 |

a. Predictors: Condition (Elective)

b. Predictors: (Constant), Condition (Elective), Perception of electiveness

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 81.451 | 3.277 | | 24.855 | .000 |
| | Condition (Elective) | -11.471 | 4.634 | -.240 | -2.475 | .015 |
| 2 | (Constant) | 85.748 | 5.057 | | 16.955 | .000 |
| | Condition (Elective) | -5.878 | 6.827 | -.123 | -.861 | .391 |
| | Perception of electiveness | -1.611 | 1.446 | -.159 | -1.115 | .268 |

a. Dependent Variable: Davis

Table 5 shows the R-square value increased from the initial value (.058) as the second-level predictor, participant perceptions of electiveness, was added to the model (.069). However, the R-square change values indicate the addition of the second block of variables did not significantly increase the amount of variance captured by the regression equation. Consequently, there is no statistical support for the conclusion that participant perceptions of electiveness function as a better predictor of responsibility attribution than the categorical data.

Despite the weakness of the models as predictors, the ANOVA results indicated each model was statistically significant in predicting the amount of responsibility attributed to Dr. Davis. The first model, for the categorical data, produced a p-value of .015. The second model, which added the element of participant perceptions of electiveness, produced a p-value of .028. Table 6 shows the results of this ANOVA procedure.

**Table 6: ANOVA results for regression analysis**

**ANOVA[c]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 3355.147 | 1 | 3355.147 | 6.126 | .015[a] |
| | Residual | 54769.608 | 100 | 547.696 | | |
| | Total | 58124.755 | 101 | | | |
| 2 | Regression | 4033.895 | 2 | 2016.948 | 3.692 | .028[b] |
| | Residual | 54090.860 | 99 | 546.372 | | |
| | Total | 58124.755 | 101 | | | |

a. Predictors: (Constant), Condition (Elective)

b. Predictors: (Constant), Condition (Elective), Perception of electiveness

c. Dependent Variable: Davis

Finally, the standardized correlation coefficients for the linear regression models identified electiveness as a significant predictor of the variance in the responsibility attributed to Dr. Davis.

*Additional Factors*

*Sympathy:* Tests for between-subject effects were conducted to examine the relationship between participant sympathy for Dr. Davis and the amount of responsibility attributed to him for the injuries sustained by the patient. Table 7

displays the results. No interaction was found between participant sympathy for Dr. Davis and the injury severity or electiveness conditions.

**Table 7: Tests of between-subject effects-Sympathy for Joe**

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 9395.832[a] | 13 | 722.756 | 1.305 | .225 |
| Intercept | 143432.718 | 1 | 143432.718 | 259.026 | .000 |
| Elective | 4690.733 | 1 | 4690.733 | 8.471 | .005 |
| Sympathy for Joe | 5389.382 | 8 | 673.673 | 1.217 | .299 |
| Elective*Sympathy for Joe | 1426.105 | 4 | 356.526 | .644 | .633 |
| Error | 48728.923 | 88 | 553.738 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .162 (Adjusted R Squared = .038)

**Table 8: Tests of between-subject effects-Sympathy for Davis**

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 12801.285[a] | 13 | 984.714 | 1.912 | .039 |
| Intercept | 330456.731 | 1 | 330456.731 | 641.614 | .000 |
| Elective | 241.351 | 1 | 241.351 | .469 | .495 |
| Sympathy for Davis | 6932.091 | 6 | 1155.348 | 2.243 | .046 |
| Elective*Sympathy for Davis | 3593.903 | 6 | 598.984 | 1.163 | .333 |
| Error | 45323.470 | 88 | 515.039 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .220 (Adjusted R Squared = .105)

*Legal Attitudes:* None of the general legal attitudes assessed in the survey were found to be related to respondents' attribution of responsibility. The results for legal attitudes are provided in appendix F.

*Attitudes towards medical malpractice:* On the issue of attitudes pertaining to medical malpractice litigation, regression analysis revealed a statistically significant relationship between the percentage of responsibility assigned to Dr. Davis and perceptions of whether or not most medical malpractice lawsuits are justified. Specifically, respondents' who believe most medical malpractice lawsuits today are justified tended to assign greater responsibility to Dr. Davis.

*Additional data:* There were no other statistically significant relationships observed in the data. However, a full statistical report has been provided in appendix F.

# CHAPTER FIVE: Discussion

The goal of this research was to identify factors that influence the manner in which responsibility is attributed in instances of medical malpractice. The results highlight the role extra-legal factors play in the decision-making process, which can inform the trial strategy of both plaintiffs and defendants in medical malpractice litigation.

An overarching result of this research is further indirect support for the claim that, while jurors are influenced by extra-legal factors, it is the evidence which primarily determines the verdict (Devine, Clayton, et al, 2001; Visher, 1987). In other words, extra-legal factors such as electiveness can influence the attribution of responsibility in instances of medical malpractice. However, it is not the primary determinant of the attribution of responsibility. This was indicated by the low R-square and partial eta squared values associated with each of the relationships. In light of this finding, the greater value of this research may lie in its contribution to the formulation of strategies in medical malpractice litigation to minimize damages through either apportionment or actual damage amounts.

*Severity and Responsibility*

The data failed to support hypothesis one, which postulated a significant relationship between the severity of injuries sustained in a medical procedure and the degree of responsibility attributed to the physician involved and suggested the amount

of responsibility attributed to the physician would increase as the severity of injuries sustained in a medical procedure increased.

As indicated in Chapter Two, prior research has proven inconclusive with regards to the influence of injury severity on determinations of responsibility of the parties involved in an incident. Robbennolt (2000) has attributed the disparities in findings across the research to the operationalization of "responsibility." In explaining to respondents the meaning of the term "responsibility," this research adopted a standard legal definition of the term, which stated:

> "In the legal setting, responsibility is assigned to physicians based upon the following criteria: (1) the physician owed a duty of care to another, which is established once the physician agrees to provide care for the patient; (2) the physician violated the standard of care that should be expected in such procedures; and (3 & 4) the violation of the standard of care caused the injuries sustained by the plaintiff. A physician who holds him/herself out to be a specialist in a particular field of medicine has a duty to use his/her skill and knowledge as a specialist in a manner consistent with the special degree of skill and knowledge ordinarily possessed by other specialists in the same field of expertise at the time of the diagnosis and/or treatment. A violation of this duty is negligence. You may also decide that the patient bears responsibility for the injuries sustained during the procedure."

The respondents in this study were provided no additional jury instructions on this matter. In light of Robbennolt's (2000) observation that several studies on severity effects have adopted varying approaches to understanding responsibility, which has, consequently, led to varying results, future research should specifically address the effect of the verdict form and jury instructions in determinations of responsibility where injury severity varies, especially in light of Bornstein's

observation that there is a conceptual difference between the layperson's understanding of the term "responsibility" and that of "liability."

An alternative explanation for the lack of statistical significance regarding the relationship between injury severity and responsibility attribution may relate to the issue of participant sympathy. While this research measured participant sympathy for both the patient and the physician, it failed to account for the impact of live testimony from the patient or physician. Consequently, participants may have found it difficult to feel sympathy for either the patient or the physician in the absence of live testimony, where each would have had the opportunity to present his corresponding narrative.

As noted in Chapter two, prior research (Batson, Fultz, & Schoenrade, 1987) has indicated humans tend to respond to the suffering and/or emotional distress of others with a desire to help them. Bornstein (1998) referred to this as "action readiness." In the absence of live testimony from either the patient or the physician, participants may have found it difficult to understand or internalize the suffering and/or emotional distress of either party. Sometimes humans need to see that someone else is suffering as opposed to hearing about it. In other words, the visual image alone can mediate sympathy. Consequently, the presence of testimony from either party presents an avenue for future research on severity effects.

Finally, Bornstein (1998) argued the presence and/or strength of severity effects varies across different types of legal cases. The literature review in Chapter Two was unable to identify any other research which has focused specifically upon

the influence of severity effects within the context of alleged medical malpractice. Consequently, more research in the area of medical malpractice needs to be conducted in order to examine the influence of varying factors including as those previously mentioned (verdict form, jury instructions, live testimony, etc) in this discussion section.

*Electiveness and Responsibility*

The data supported hypothesis two which claimed the degree of responsibility for the injuries sustained in a medical procedure that is attributed to the physician would be significantly lower in instances where the patient had some perceived control over the procedure. Specifically, as participants' perceptions of the electiveness of the procedure increased, the amount of responsibility attributed to Dr. Davis decreased. Instead, in instances where the procedure was perceived as elective, the participants indicated Joe should shoulder some of the responsibility for the resulting injuries.

While Joe's choice did not influence the manner in which Dr. Davis performed the surgery nor did it lead Dr. Davis to improperly implant the needle, the data indicated participants still felt Joe should shoulder some of the responsibility for his choice to undergo an operation that was not deemed a medical necessity. This is especially interesting in light of the fact that each scenario involved an admission by Dr. Davis that he did improperly implant the needle, which was the cause of the injuries to the Joe.

The increased responsibility assigned to Joe within the elective conditions may have been the product of counterfactual thinking. Feigenson (2000) described counterfactual thinking as instances when "people trying to identify the cause or causes of some outcome imagine (or simulate) scenarios other than the one that actually occurred by 'undoing' or 'mutating' one or more of the events that preceded the outcome. They imagine: 'if only x had been different, the outcome would have been different.'" Feigenson (2000) noted the more readily identifiable the alternative scenario is, the more likely people will focus on the varying factor when attributing responsibility.

In this study, the decision to undergo an "unnecessary" surgery is an easily identifiable focal point for counterfactual thinking. First, it is one of the few, if not only factors, of which participants, armed from knowledge and personal experience, could argue as something that could or should have been different. In other words, it is difficult to focus on the choice of doctor, the type of procedure used, etc. simply due to a lack of detailed information regarding these factors. Second, participants may have found it difficult to relate to a decision to undergo an "unnecessary" medical procedure. Despite recent cosmetic trends, most individuals may not have had a personal experience in which they had a reason to undergo an unnecessary medical procedure. Consequently, it may have been difficult for participants to understand why an individual would do such a thing. Combined with the hindsight bias associated with the knowledge of the injury, it is easy to conclude the risks will always outweigh the benefits of an unnecessary procedure.

The research findings pertaining to the influence of electiveness create a dilemma for patients involved in litigation resulting from an injury suffered during the course of a surgery. This research demonstrates a defendant's success in identifying a connection between the choices made by the patient and the injuries associated with a procedure may reduce the amount of responsibility jurors assign to the physician and, conversely, increase the amount of responsibility assigned to the patient. This is consistent with the theoretical work of Michotte (1941, 1963) and Phares and Wilson (1972) which suggests humans establish causality based upon the perception of immediate "structured connections." When combined with a theory of counterfactual thinking, this may help to explain the increased responsibility assigned to the patient within the elective conditions.

Within this scenario, the fact that the physicians informed Joe the procedure was unnecessary highlights Joe's choice as an obvious counterfactual focal point. The element of choice allows participants to place themselves in the position of the patient when evaluating the outcome. Participant hindsight bias allows them to conclude "I would not have undergone an unnecessary surgery." This ability of participants to place themselves in the shoes of Joe and determine what their choice would have been allows them to draw a conceptual distinction at the point of the choice by Joe to undergo the procedure.

In other words, Joe's choice to undergo an unnecessary procedure becomes an obvious "if only x had been different" point of analysis, which strengthens the perception of what Michotte (1941, 1963) and Phares and Wilson (1972) referred to

as a "structured connection." Joe's choice to undergo the procedure, despite a lack of medical necessity, conceptually creates an easily identifiable "structured connection" to the outcome of the procedure, in which the participant, using counterfactual thinking, mistakenly interprets Joe's decision as the "cause" of his injury.

Additionally, as noted in earlier discussion, the element of electiveness as related to the outcome offers jurors' an opportunity to distinguish themselves from the plaintiff, which allows for "victim-blaming" (Walster, 1966). These distinctions are often drawn out of a psychological necessity for one to feel such an injury would not happen to him. Humans inherently have difficulty accepting that random traumatic events could happen to them. Consequently, when such events do occur, a psychological distinction between the individual and the victim allows the individual to feel comfortable that the same fate would not fall upon him because of the established distinction (e.g. "I would not have undergone an unnecessary surgery").

Finally, this finding highlights a potential strategic focus for plaintiffs in the development of the plaintiff narrative during the course of medical malpractice litigation. A carefully constructed narrative that casts a medical procedure as medically necessary may lead to a shift in focus on the part of the triers of fact to the actions of the physician as opposed to the choices of the patient, thereby enhancing the potential for success in persuading the triers of fact to assign a greater portion of responsibility to the physician. Consequently, future research should focus on the persuasiveness of narrative elements aimed at casting a medical procedure as medically necessary where such characteristics are not readily apparent.

*Conclusion*

Analysis of the data collected in this research supported Bornstein (1998) and Bovbjerg et al's (1991) suggestion that it is more productive to examine the effects of extra-legal factors within specific types of litigation. Specifically, an overall finding of this research indicated the manner in which the identified extra-legal factors operate in conjunction with the evidence in the assessment and attribution of responsibility may vary along the type of litigation due to the unique factors associated with each type of litigation, which shape jurors' attitudes and beliefs about the individuals involved and the nature of the incident. For example, the issue of electiveness and medical necessity is unique to medical malpractice as opposed to some other types of personal injury litigation. Additionally, focusing research on extra-legal factors to particular types of litigation may produce more practical results which can aid in informing trial strategies for those involved in a particular kind of litigation.

There are limitations to the findings in this research. While useful for those involved in medical malpractice litigation, the conditions of an actual trial could not be replicated for the purposes of the research. Specifically, the research could not account for the performance of witnesses along with the emotional impact of their testimony and attorney presentational style. Additionally, real jurors would receive greater details surrounding the incident in an actual trial.

Future research should expand upon the framework established herein and examine the potential influence of factors including as witness testimony, jury instructions, verdict forms, and additional variations of patient agency.

# Works Cited


Andre, C. & Valesquez, M. (Spring, 1990). The Just World Theory. Markkula Center for Applied Ethics. *Issues in Ethics*. 3, 2.

Arendt, H. (1969) 'Collective Responsibility' in James Bernauer (ed.) *Amor Mundi: Explorations in the Faith and Thought of Hannah Arendt*, (Dordrecht: Martinus Nijhoff 1987).

Badzinski, D. M. (1994). Nonverbal involvement and sex: Effects on jury decision making. *Journal of Applied Communication Research*, 22, 309-321.

Barge, J. K., Schlueter, D. W., & Pritchard, A. (1989). The effects of nonverbal communication and gender on impression formation in opening statements. *The Southern Communication Journal*, 54, 330-349.

Batson, D. D., Fultz, J., & Schoenrade, P. A. (1987). Adults' emotional reactions to the distress of others. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 163-184). Cambridge, UK: Cambridge University Press.

Bennett, W.L. & Feldman, M.S. (1981). *Reconstructing reality in the courtroom : justice and judgement in American culture*. New Brunswick, N.J. : Rutgers University Press

Bernstein, A. H. (1987). *Avoiding medical malpractice*. Chicago: Pluribus Press.

Bornstein, B. H. (1998). From compassion to compensation: The effect of injury severity on mock jurors' liability judgments. *Journal of Applied Social Psychology*, 28, 1477-1502.

Bothsell, R. K. & Jalil, M. (1992). The credibility of nervous witnesses. *Journal of Social Behavior and Personality*, 7, 581-586.

Boumil, M. M., Elias, C. E. (1995). *The law of medical liability*. St. Paul, MN: West Publishing Co.

Bovbjerg, R. R., Sloan, F. A., Dor, A., & Hsieh, C. R. (1991). Juries and justice: Are malpractice and other personal injuries created equal? *Law and Contemporary Problems*, 54, 5-41.

Bowman, M. A., Herndon, A., Sharp, P. C., & Dignan, M. B. (1992). Assessment of the patient-doctor interaction scale for measuring patient satisfaction. *Patient Education and Counseling*, 19, 75-80.

Brennan, T. A., Leape, L. L., Laird, N. M., et al. Incidence of adverse events and negligence in hospitalized patients: results of the Harvard Medical Practice Study I. *New England Journal of Medicine*, 324, 370-376.

Casper, J., Benedict, K., & Perry, J. (1989). Juror decision making, attitudes, and the hindsight bias. *Law and Human Behavior*, 13, 291-310.

Cather, C., Greene, E., & Durham, R. (1996). Plaintiff injury and Defendant Reprehensibility: Implications for compensatory and punitive damage awards. *Law and Human Behavior*, 20, 2, 189-205.

CNN, (June 25, 2002). Supreme Court bars executing mentally retarded. *CNN.com/Law Center*, http://archives.cnn.com/2002/LAW/06/20/scotus.executions.

Cohen, T. H. (April, 2004). Medical malpractice trials and verdicts in large counties, 2001. *Bureau of Justice Statistics, Civil Justice Data Brief.* http://www.ojp.usdoj.gov/bjs/abstract/mmtvlc01.htm

Conte, R., & Paolucci, M. (2004). Responsibility for societies of agents. *Journal of Artificial Societies and Social Simulation*, 7, 4.

Darby, B. W. & Jeffers, D. (1988). The effects of defendant and juror attractiveness on simulated courtroom trial decisions. *Social Behavior and Personality*, 16, 39-50.

Devine, D.J., Clayton, L.D., Dunford, B.B., Seying, R., & Pryce, J. (2001). Jury decision making: 45 years of empirical research on deliberating groups. *Psychology, Public Policy, and Law*, (3), 622-727.

Feigenson, N. (2000). *Legal blame: How jurors think and talk about accidents*. Washington, D.C.: American Psychological Association.

Feigenson, N., Park, J., Salovey, P. (1997). Effect of Blameworthiness and Outcome Severity on attributions of responsibility and damage awards in comparative negligence cases. *Law and Human Behavior*, 21, 6, 597-617.

Fischhoff, B. (1975). Hindsight does not equal foresight: The effect of outcome knowledge on judgment under certainty. *Journal of Experimental Psychology: Human Perception and Performance*, 1, 288-299.

Fischhoff, B. & Beyth, R. (1975). "I knew it would happen": Remembered probabilities of once-future things. *Organizational Behavior and Human Performance*, 13, 1-16.

Frijda, N. H. (1987). Emotion, cognitive structure, and action tendency. *Cognition and Emotion*, 1, 115-143.

Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, 57, 212-228.

Furley, D. (1997). *From Aristotle to Augustine: Routledge History of Philosophy*. Volume 2, London: Routledge.

Green, E. (1968). The reasonable man: Legal fiction of psychosocial reality? *Law and Society Review*, 1, 241-257.

Greene, E., & Bornstein, B. (2003). *Determining Damages: The Psychology of Jury Awards*. Washington, D.C.: American Psychological Association.

Gutheil, T. G., Bursztajn, H., & Brodsky, A. (1984). Malpractice prevention through the sharing of uncertainty. *New England Journal of Medicine*, 311, 49-51.

Hafer, C. L., Reynolds, K. L., and Obertnski, M. A. (1996). Message comprehensibility and persuasion: Effects of complex language in counterattitudinal appeals to laypeople. *Social Cognition*, 14, 317-337.

Hahn, P. W., & Clayton, S. D. (1996). The effects of attorney presentation style, attorney gender and juror gender on juror decisions. *Law and Human Behavior*, 20, 533-554.

Hart, A. J., Evans, D. L., Wissler, R. L., Feehan, J. W., et. Al. (1997). Injuries, prior beliefs, and damage awards. *Behavioral Sciences and the Law*, 15, 63-82.

Hart, H.L.A, & Honore, A.M. (1961). Causation and the law. In H. Morris (ed), *Freedom and Responsibility*, 325-342.

Harvey, J. (1993). Probing the depths of commonsense psychology. *Current Contents*. 20, 14.

Heider, F. (1958). *The psychology of interpersonal relations*. New York, NY: John Wiley & Sons.

Heider, F. (1983). The life of a psychologist: an autobiography. Lawrence, KS: University of Kansas Press.

Herbert, V. A. (1986). A proposed solution to the malpractice problem. *New York State Journal of Medicine*, 86, 394-395.

Hicks, R. G. (1983). Ounces of prevention. *New York State Journal of Medicine*, 73, 2268-2269.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: psychological studies of opinion change*. New Haven, CT: Yale University Press.

Human Rights Watch, (March 1, 2001). Beyond reason: The death penalty and offenders with mental retardation. *Human Rights Watch Report/Publications*. http://www.hrw.org/reports/2001/ustat/, 13, 1.

Hume, J. (1739). Of the understanding. *A Treatise of Human Nature*. Book 1.

Jefferson, T. (1789) Letter from Thomas Jefferson to Abbe Arnoux, ME 7:422, Papers 15:283

Jennings, N. R. (1992) On being responsible. In *Decentralized A.I.* 3, Proc. MAAMAW-91, 93-102, Amsterdam, The Netherlands 1992. Elsevier Science Publishers, http://citeseer.ist.psu.edu/jennings92being.html

Joseph, J.M., & Tedescni, J.T. (1983). Perceived responsibility and the leas of evils principle. *Law and Human Behavior*, 7, 51-58.

Kamin, K., & Rachlinski, J. (1995). Ex post =/ ex ante: Determining liability in hindsight. *Law and Human Behavior*, 19, 89-104.

Kahneman, D., & Miller, D. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, 93, 136-153.

Kruschke J K, Fragassi M M, (1996). The perception of causality: Feature binding in interacting objects. In *Proceedings of the Eighteenth Annual Conference of the Cognitive Science Society* (Hillsdale, NJ: Lawrence Erlbaum Associates), 441 – 446.

LaBine, S. J., & LaBine, G., (1996). Determinations of negligence and the hindsight bias. *Law and Human Behavior*, 20, 501-516.

Lerner, M. J. (1965). Evaluation of performance as a function of performer's reward and attractiveness. *Journal of Personality and Social Psychology*, 1, 355-360.

Lieberman, J. A. (1985). *The litigious society*. New York: Basic Books.

Localio, A. R., Lawthers, A. G., Brennan, T. A., et al. (1991). Relation between malpractice claims and adverse events due to negligence: results of the Harvard Medical Practice Study III. *New England Journal of Medicine*, 325, 245-251.

Lloyd-Bostock, S. (1979). The ordinary man and the psychology of attributing causes and responsibility. *Modern Law Review*, 42, 143-168.

Lupfer, M., Cohen, R., Bernard, J.L., Smalley, D., et. Al. (1985). An attributional analysis of jurors judgments in civil cases. *Journal of Social Psychology*, 125, 743-751.

Martin, J. (February 27, 1998). The insanity defense: a closer look. *The Washington Post*. http://www.washingtonpost.com/wp-srv/local/longterm/aron/qa227.htm

Michotte, A. (1941). La causalite physique est-elle une donnee phenomenale? *Tijdschrift voor Philosophie*, 3, 290-328. Unpublished translation by Krista Hensley, April 30, 1993.

Michotte, A. (1963). *The perception of causality.* New York: Basic Books. Translated from the French by T.R. and E. Miles.

Moore, P.J., Adler, N.E., & Robertson, P.A. (2000). Medical malpractice: the effect of doctor-patient relations on medical patient perceptions and malpractice intentions. *Western Journal of Medicine*, 173, 244-250.

National Safety Council (2005-2006). *Injury facts.* https://secure.nsc.org/onlinecart/product.cfm?id=1501

Pennington, N. & Hastie, R. (1991). A cognitive theory of juror decision making: The story model. *Cardozo Law Review*, 13, 519-557.

Pennington, N. & Hastie, R. (1991). A cognitive theory of juror decision making: The story model. *Cardozo Law Review*, 13, 519-557.

Petty, R. E. (1977). A cognitive response analysis of the temporal persistence of attitude
changes induced by persuasive communications. Unpublished doctoral dissertation. Ohio State University, Columbus, OH.

Petty, R. E., & Cacioppo, J. T. (1981). *Attitudes and persuasion: Classic and contemporary approaches*. Dubuque, IA: Wm. C. Brown.

Petty, R. E., & Cacioppo, J. T. (1986a). *Communication and persuasion: Central and peripheral routes to persuasion*. New York: Springer-Verlag.

Petty, R. E., & Cacioppo, J. T. (1986b). The Elaboration Likelihood Model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123-205). New York: Academic Press.

Petty, R.E. & Wegener, D.T. (1999). The elaboration likelihood model: Current status and controversies. In S. Chaiken, & Y. Trope (Eds.), *Dual-Process Theories in Social Psychology.* New York: The Guilford Press.

Phares, E. J., & Wilson, K. G. (1972). Responsibility attribution: The role of outcome severity, situational ambiguity, and internal-external control. *Journal of Personality*, 40, 392-406.

Pryor, B. & Buchanan, R. W. (1984). The effects of defendant's demeanor on juror perceptions of credibility and guilt. *Journal of Communication*, 34, 92-99.

Ratneshwar, S. & Chaiken, S. (1991). Comprehension's role in persuasion: The case of its moderating effect on the persuasive impact of source cues. *Journal of Consumer Research*, 18, 52-62.

Robbennolt, J. K. (2000). Outcome severity and judgments of "responsibility": A meta-analytic review. *Journal of Applied Social Psychology*, 30, 2575-2609.

Robertson, W. O. (1985). *Medical malpractice: a preventative approach*. Seattle: University of Washington Press.

Shaver, K. G. (1970a). Defensive attribution: Effects of severity and relevance on the responsibility assigned for an accident. *Journal of Personality and Social Psychology*, 14, 101-113.

Shaver, K. G. (1970b). Redress and conscientiousness in the attribution of responsibility for accidents. *Journal of Experimental Social Psychology*, 6, 100-110.

Shaw, J. I., & McMartin, J. A. (1977). Personal and situational determinants of attribution of responsibility for an accident. *Human Relations*, 30, 95-107.

Shaw, M. E., & Sulzer, J. L. (1964). An empirical test of Heider's levels in attribution of responsibility. *Journal of Abnormal and Social Psychology*, 69, 39-46.

Slawson, P. F. (1984). Psychiatric malpractice: some aspects of cause. *Psychiatric Hospital*, 15, 141-144.

Smith, J. K. (1983). Development of the Smith-Falvo Patient-Doctor Interaction Scale (PDIS). Dissertation Abstracts Int.

Spiecker, S. C., & Worthington, D. L. (2003). The influence of opening statement/closing argument organizational strategy on juror verdict and damage awards. *Law and Human Behavior*, 27, 437-456.

Stallard, M. J., & Worthington, D. L. (1998). Reducing the Hindsight Bias Utilizing Attorney Closing Arguments. *Law and Human Behavior*, 22, 671-683.

Thomas, E. A. C., & Parpal, M. (1987). Liability as a function of plaintiff and defendant fault. *Journal of Personality and Social Psychology*, 53, 843-857.

Vidmar, N., & Crinklaw, L. D. (1974). Attributing responsibility for an accident: A methodological and conceptual critique. *Canadian Journal of Behavioral Science*, 6, 112-130.

Vidmar, N., Lee, J., Cohen, E., & Stewart, A. (1994). Damage awards and jurors' responsibility ascriptions in medical versus automobile negligence cases. *Behavioral Sciences and the Law*, 12, 149-160.

Vincent, C., Young, M., & Phillips, A. (1994). Why do people sue doctors? A study of patients and relatives taking legal action. *Lancet*, 343, 1609-1613.

Visher, C. A. (1987). Juror decision making: The importance of evidence. *Law and Human Behavior*, 11, 1, 1-17.

Walster, E. (1966). Assignment of responsibility for an accident. *Journal of Personality and Social Psychology*, 3, 73-79.

Walster, E. (1967). "Second-guessing" important events. *Human Relations*, 20, 239-250.

# Appendix A

**Condition #1*:*** Joe is a thirty-two year old male who has noticed an abnormal growth behind his left ear. Although the growth is creating no pain, it is clearly visible to others and has the appearance of being "abnormal." While Joe is not overly concerned about any health risks associated with this growth, after a discussion with his fiancé, he decides to see his personal physician, Dr. Davis. Dr. Davis is a physician that Joe starting seeing five years ago when Joe was referred to Dr. Davis by a friend. At that time, Joe did not have a physician that he saw regularly for his health. Joe likes Dr. Davis because he feels that Dr. Davis is very personable and straight forward with Joe. Joe also likes the fact that Dr. Davis graduated from one of the top medical schools in the region and has over a decade of experience in the medical field.

Upon his visit, Dr. Davis informs Joe that the growth behind his ear is a benign tumor. This non-cancerous tumor is essentially a bony tumor of the ear canal that may have been caused by an overgrowth of bone. Dr. Davis informs Joe that removal is not medically required because the tumor poses no danger or medical problems for Joe. Dr. Davis furthermore emphasizes that the tumor will not become cancerous or pose any other danger to Joe at any point in the future. Joe chooses to consult a second physician before making his final decision. He does this, not because he doubts Dr. Davis. Instead, he feels that any health issue that could potentially be serious, especially those related to cancer or tumors, warrants a second opinion. Joe finds a second physician through a family member. The second physician also agrees that removal is not medically necessary for the same reasons cited by Dr. Davis.

Even though surgery is not medically required, Joe elects to have surgery to remove the tumor because he feels that its presence negatively impacts his personal appearance to others and that he'd be better off just having it removed at this time.

As Dr. Davis does with all patients undergoing any type of surgery, he indicates to Joe that any surgery involves risks. In doing so, Dr. Davis does not specify any particular risks associated with this surgery. It is simply a common practice of Dr. Davis to tell patients that surgeries sometimes have unexpected complications. Dr. Davis tells Joe that there shouldn't be any cause for concern because he feels that this particular surgery should not involve any complications. He informs Joe that this surgery is a relatively common procedure with a short recovery period and that patients typically go home the same day that the surgery is performed. Joe acknowledges this information and chooses to proceed with the surgery. However, Dr. Davis has Joe sign a consent form acknowledging that Dr. Davis informed him of the risks involved with the surgery, which is common practice for doctors.

The surgery is performed at the local county hospital and only takes about two to three hours to perform.

Upon injection of a local anesthetic into the upper portion of Joe's neck and cheek area, Dr. Davis mistakenly damages Joe's facial nerve by improperly implanting the needle. When implanting a needle in this part of the face, a doctor typically only has a few centimeters to work with in safely introducing the anesthetic. Unfortunately, Dr. Davis simply missed this "safe area" and hit one of Joe's nerves. The surgery is completed

within three hours and Joe begins a short recovery that is expected to take between four and six days. Joe is allowed to go home immediately after the surgery. However, Dr. Davis tells Joe that he should stay home during recovery and try not to engage in too much physical activity. Finally, before Joe leaves, Dr. Davis informs him of the nerve damage that resulted from the anesthetic injection. Dr. Davis tells Joe that he does not believe that it will become a serious problem and that it should heal itself within a few weeks.

On the second day of his recovery, Joe notices problems with numbness on the left side of his face and severe pain throughout the rest of his face and decides to return to the hospital to consult Dr. Davis on the problem. After a careful examination, Dr. Davis concludes and informs Joe that, although the surgery on the tumor was performed successfully, the improper implantation of the needle caused Joe to suffer irreversible nerve damage that will result in a permanent facial distortion, which also will cause a permanent muscle pain in his face. Dr. Davis tells Joe that he had hoped the nerve damage would heal over time. However, he indicates that it has now become apparent that the damage is permanent. Unfortunately, there are no medical procedures that can repair the nerve damage.

Dr. Davis regrets the fact that Joe must deal with this nerve damage and acknowledges that he did in fact, improperly implant the needle.

Over time, this facial distortion causes his face to droop on one side causing others to believe that his face is deformed. Joe believes that the deformity radically alters his appearance to others in a very negative way. He believes that, because of it, he has lost many friends. He also indicates that he regularly notices strangers staring at him in public places. Eventually, Joe's fiancé leaves him. While Joe acknowledges that his fiancé never outright said it, Joe believes that she simply could not deal with the facial deformity. Since the surgery, Joe has become very depressed.

# Appendix B

**Condition Two:** Joe is a thirty-two year old male who has noticed an abnormal growth behind his left ear. Although the growth is creating no pain, it is clearly visible to others and has the appearance of being "abnormal." While Joe is not overly concerned about any health risks associated with this growth, after a discussion with his fiancé, he decides to see his personal physician, Dr. Davis. Dr. Davis is a physician that Joe starting seeing five years ago when Joe was referred to Dr. Davis by a friend. At that time, Joe did not have a physician that he saw regularly for his health. Joe likes Dr. Davis because he feels that Dr. Davis is very personable and straight forward with Joe. Joe also likes the fact that Dr. Davis graduated from one of the top medical schools in the region and has over a decade of experience in the medical field.

Upon his visit, Dr. Davis informs Joe that the growth behind his ear is a benign tumor. This non-cancerous tumor is essentially a bony tumor of the ear canal that may have been caused by an overgrowth of bone. Dr. Davis informs Joe that removal is not medically required because the tumor poses no danger or medical problems for Joe. Dr. Davis furthermore emphasizes that the tumor will not become cancerous or pose any other danger to Joe at any point in the future. Joe chooses to consult a second physician before making his final decision. He does this, not because he doubts Dr. Davis. Instead, he feels that any health issue that could potentially be serious, especially those related to cancer or tumors, warrants a second opinion. Joe finds a second physician through a family member. The second physician also agrees that removal is not medically necessary for the same reasons cited by Dr. Davis.

Even though surgery is not medically required, Joe elects to have surgery to remove the tumor because he feels that its presence negatively impacts his personal appearance to others and that he'd be better off just having it removed at this time.

As Dr. Davis does with all patients undergoing any type of surgery, he indicates to Joe that any surgery involves risks. In doing so, Dr. Davis does not specify any particular risks associated with this surgery. It is simply a common practice of Dr. Davis to tell patients that surgeries sometimes have unexpected complications. Dr. Davis tells Joe that there shouldn't be any cause for concern because he feels that this particular surgery should not involve any complications. He informs Joe that this surgery is a relatively common procedure with a short recovery period and that patients typically go home the same day that the surgery is performed. Joe acknowledges this information and chooses to proceed with the surgery. However, Dr. Davis has Joe sign a consent form acknowledging that Dr. Davis informed him of the risks involved with the surgery, which is common practice for doctors.

The surgery is performed at the local county hospital and only takes about two to three hours to perform.

Upon injection of a local anesthetic into the upper portion of Joe's neck and cheek area, Dr. Davis mistakenly damages Joe's facial nerve by improperly implanting the needle. When implanting a needle in this part of the face, a doctor typically only has a few centimeters to work with in safely introducing the anesthetic. Unfortunately, Dr. Davis simply missed this "safe area" and hit one of Joe's nerves. The surgery is completed

within three hours and Joe begins a short recovery that is expected to take between four and six days. Joe is allowed to go home immediately after the surgery. However, Dr. Davis tells Joe that he should stay home during recovery and try not to engage in too much physical activity. Finally, before Joe leaves, Dr. Davis informs him of the nerve damage that resulted from the anesthetic injection. Dr. Davis tells Joe that he does not believe that it will become a serious problem and that it should heal itself within a few weeks.

On the second day of his recovery, Joe notices problems with numbness on the left side of his face and decides to return to the hospital to consult Dr. Davis on the problem. After a careful examination, Dr. Davis concludes and informs Joe that, although the surgery on the tumor was performed successfully, the improper implantation of the needle caused Joe to suffer some nerve damage that will result in a slight facial distortion, which will become apparent to others only when he smiles. Dr. Davis tells Joe that he had hoped the nerve damage would heal over time. However, he indicates that it has now become apparent that the damage is permanent. Unfortunately, there are no medical procedures that can repair the nerve damage. Dr. Davis regrets the fact that Joe must deal with this nerve damage and acknowledges that he did in fact, improperly implant the needle.

Other than when Joe smiles, there are no visible indications of nerve damage. Since his surgery, he has had a lot of social support from his friends and fiancé.

# Appendix C

**Condition Three:** Joe is a thirty-two year old male who has noticed an abnormal growth behind his left ear. Although the growth is creating no pain, it is clearly visible to others and has the appearance of being "abnormal." While Joe is not overly concerned about any health risks associated with this growth, after a discussion with his fiancé, he decides to see his personal physician, Dr. Davis. Dr. Davis is a physician that Joe starting seeing five years ago when Joe was referred to Dr. Davis by a friend. At that time, Joe did not have a physician that he saw regularly for his health. Joe likes Dr. Davis because he feels that Dr. Davis is very personable and straight forward with Joe. Joe also likes the fact that Dr. Davis graduated from one of the top medical schools in the region and has over a decade of experience in the medical field.

Upon his visit, Dr. Davis informs Joe that the growth behind his ear is a benign tumor. This non-cancerous tumor is essentially a bony tumor of the ear canal that may have been caused by an overgrowth of bone. Dr. Davis informs Joe that surgery is medically necessary. While the tumor is not cancerous, if it is not removed, it will continue to grow and cause permanent hearing loss. Furthermore, continued growth of the tumor will lead to extraordinary pain throughout the left side of Joe's face. Joe chooses to consult a second physician before making his final decision. He does this, not because he doubts Dr. Davis. Instead, he feels that any health issue that could potentially be serious, especially those related to cancer or tumors, warrants a second opinion. Joe finds a second physician through a family member. The second physician also agrees that removal is medically necessary for the same reasons cited by Dr. Davis. Therefore, Joe agrees to have the surgery performed.

As Dr. Davis does with all patients undergoing any type of surgery, he indicates to Joe that any surgery involves risks. In doing so, Dr. Davis does not specify any particular risks associated with this surgery. It is simply a common practice of Dr. Davis to tell patients that surgeries sometimes have unexpected complications. Dr. Davis tells Joe that there shouldn't be any cause for concern because he feels that this particular surgery should not involve any complications. He informs Joe that this surgery is a relatively common procedure with a short recovery period and that patients typically go home the same day that the surgery is performed. Joe acknowledges this information and chooses to proceed with the surgery. However, Dr. Davis has Joe sign a consent form acknowledging that Dr. Davis informed him of the risks involved with the surgery, which is common practice for doctors.

The surgery is performed at the local county hospital and only takes about two to three hours to perform.

Upon injection of a local anesthetic into the upper portion of Joe's neck and cheek area, Dr. Davis mistakenly damages Joe's facial nerve by improperly implanting the needle. When implanting a needle in this part of the face, a doctor typically only has a few centimeters to work with in safely introducing the anesthetic. Unfortunately, Dr. Davis simply missed this "safe area" and hit one of Joe's nerves. The surgery is completed within three hours and Joe begins a short recovery that is expected to take between four and six days. Joe is allowed to go home immediately after the surgery. However, Dr.

Davis tells Joe that he should stay home during recovery and try not to engage in too much physical activity. Finally, before Joe leaves, Dr. Davis informs him of the nerve damage that resulted from the anesthetic injection. Dr. Davis tells Joe that he does not believe that it will become a serious problem and that it should heal itself within a few weeks.

On the second day of his recovery, Joe notices problems with numbness on the left side of his face and severe pain throughout the rest of his face and decides to return to the hospital to consult Dr. Davis on the problem. After a careful examination, Dr. Davis concludes and informs Joe that, although the surgery on the tumor was performed successfully, the improper implantation of the needle caused Joe to suffer irreversible nerve damage that will result in a permanent facial distortion, which will also cause a permanent muscle pain in his face. Dr. Davis tells Joe that he had hoped the nerve damage would heal over time. However, he indicates that it has now become apparent that the damage is permanent. Unfortunately, there are no medical procedures that can repair the nerve damage.

Dr. Davis regrets the fact that Joe must deal with this nerve damage and acknowledges that he did in fact, improperly implant the needle.

Over time, this facial distortion causes his face to droop on one side causing others to believe that his face is deformed. Joe believes that the deformity radically alters his appearance to others in a very negative way. He believes that, because of it, he has lost many friends. He also indicates that he regularly notices strangers staring at him in public places. Eventually, Joe's fiancé leaves him. While Joe acknowledges that his fiancé never outright said it, Joe believes that she simply could not deal with the facial deformity. Since the surgery, Joe has become very depressed.

# Appendix D

**Scenario Four:** Joe is a thirty-two year old male who has noticed an abnormal growth behind his left ear. Although the growth is creating no pain, it is clearly visible to others and has the appearance of being "abnormal." While Joe is not overly concerned about any health risks associated with this growth, after a discussion with his fiancé, he decides to see his personal physician, Dr. Davis. Dr. Davis is a physician that Joe starting seeing five years ago when Joe was referred to Dr. Davis by a friend. At that time, Joe did not have a physician that he saw regularly for his health. Joe likes Dr. Davis because he feels that Dr. Davis is very personable and straight forward with Joe. Joe also likes the fact that Dr. Davis graduated from one of the top medical schools in the region and has over a decade of experience in the medical field.

Upon his visit, Dr. Davis informs Joe that the growth behind his ear is a benign tumor. This non-cancerous tumor is essentially a bony tumor of the ear canal that may have been caused by an overgrowth of bone. Dr. Davis informs Joe. that surgery is medically necessary. While the tumor is not cancerous, if it is not removed, it will continue to grow and cause permanent hearing loss. Furthermore, continued growth of the tumor will lead to extraordinary pain throughout the left side of Joe's face. Joe chooses to consult a second physician before making his final decision. He does this, not because he doubts Dr. Davis. Instead, he feels that any health issue that could potentially be serious, especially those related to cancer or tumors, warrants a second opinion. Joe finds a second physician through a family member. The second physician also agrees that removal is medically necessary for the same reasons cited by Dr. Davis. Therefore, Joe agrees to have the surgery performed.

As Dr. Davis does with all patients undergoing any type of surgery, he indicates to Joe that any surgery involves risks. In doing so, Dr. Davis does not specify any particular risks associated with this surgery. It is simply a common practice of Dr. Davis to tell patients that surgeries sometimes have unexpected complications. Dr. Davis tells Joe that there shouldn't be any cause for concern because he feels that this particular surgery should not involve any complications. He informs Joe that this surgery is a relatively common procedure with a short recovery period and that patients typically go home the same day that the surgery is performed. Joe acknowledges this information and chooses to proceed with the surgery. However, Dr. Davis has Joe sign a consent form acknowledging that Dr. Davis informed him of the risks involved with the surgery, which is common practice for doctors.

The surgery is performed at the local county hospital and only takes about two to three hours to perform.

Upon injection of a local anesthetic into the upper portion of Joe's neck and cheek area, Dr. Davis. mistakenly damages Joe's facial nerve by improperly implanting the needle. When implanting a needle in this part of the face, a doctor typically only has a few centimeters to work with in safely introducing the anesthetic. Unfortunately, Dr. Davis simply missed this "safe area" and hit one of Joe's nerves. The surgery is completed within three hours and Joe begins a short recovery that is expected to take between four and six days. Joe is allowed to go home immediately after the surgery. However, Dr.

Davis tells Joe that he should stay home during recovery and try not to engage in too much physical activity. Finally, before Joe leaves, Dr. Davis informs him of the nerve damage that resulted from the anesthetic injection. Dr. Davis tells Joe that he does not believe that it will become a serious problem and that it should heal itself within a few weeks.

On the second day of his recovery, Joe notices problems with numbness on the left side of his face and decides to return to the hospital to consult Dr. Davis on the problem. After a careful examination, Dr. Davis concludes and informs Joe that, although the surgery on the tumor was performed successfully, the improper implantation of the needle caused Joe to suffer some nerve damage that will result in a slight facial distortion, which will become apparent to others only when he smiles. Dr. Davis tells Joe that he had hoped the nerve damage would heal over time. However, he indicates that it has now become apparent that the damage is permanent. Unfortunately, there are no medical procedures that can repair the nerve damage.

Dr. Davis regrets the fact that Joe must deal with this nerve damage and acknowledges that he did in fact, improperly implant the needle.

Other than when Joe smiles, there are no visible indications of nerve damage. Since his surgery he has had a lot of social support from his friends and fiancé.

# Appendix E

**1) Directions:** Please read following paragraph describing an incident that occurred during a medical procedure and then move on to the second section.

Joe is a thirty-two year old male who has noticed an abnormal growth behind his left ear. Although the growth is creating no pain, it is clearly visible to others and has the appearance of being "abnormal." While Joe is not overly concerned about any health risks associated with this growth, after a discussion with his fiancé, he decides to see his personal physician, Dr. Davis. Dr. Davis is a physician that Joe starting seeing five years ago when Joe was referred to Dr. Davis by a friend. At that time, Joe did not have a physician that he saw regularly for his health. Joe likes Dr. Davis because he feels that Dr. Davis is very personable and straight forward with Joe. Joe also likes the fact that Dr. Davis graduated from one of the top medical schools in the region and has over a decade of experience in the medical field.

Upon his visit, Dr. Davis informs Joe that the growth behind his ear is a benign tumor. This non-cancerous tumor is essentially a bony tumor of the ear canal that may have been caused by an overgrowth of bone. Dr. Davis informs Joe that removal is not medically required because the tumor poses no danger or medical problems for Joe. Dr. Davis furthermore emphasizes that the tumor will not become cancerous or pose any other danger to Joe at any point in the future. Joe chooses to consult a second physician before making his final decision. He does this, not because he doubts Dr. Davis. Instead, he feels that any health issue that could potentially be serious, especially those related to cancer or tumors, warrants a second opinion. Joe finds a second physician through a family member. The second physician also agrees that removal is not medically necessary for the same reasons cited by Dr. Davis.

Even though surgery is not medically required, Joe elects to have surgery to remove the tumor because he feels that its presence negatively impacts his personal appearance to others and that he'd be better of just having it removed at this time.

As Dr. Davis does with all patients undergoing any type of surgery, he indicates to Joe that any surgery involves risks. In doing so, Dr. Davis does not specify any particular risks associated with this surgery. It is simply a common practice of Dr. Davis to tell patients that surgeries sometimes have unexpected complications. Dr. Davis tells Joe that there shouldn't be any cause for concern because he feels that this particular surgery should not involve any complications. He informs Joe that this surgery is a relatively common procedure with a short recovery period and that patients typically go home the same day that the surgery is performed. Joe acknowledges this information and chooses to proceed with the surgery. However, Dr. Davis has Joe sign a consent form acknowledging that Dr. Davis informed him of the risks involved with the surgery, which is common practice for doctors.

The surgery is performed at the local county hospital and only takes about two to three hours to perform.

Upon injection of a local anesthetic into the upper portion of Joe's neck and cheek area, Dr. Davis mistakenly damages Joe's facial nerve by improperly implanting the needle.

When implanting a needle in this part of the face, a doctor typically only has a few centimeters to work with in safely introducing the anesthetic. Unfortunately, Dr. Davis simply missed this "safe area" and hit one of Joe's nerves. The surgery is completed within three hours and Joe begins a short recovery that is expected to take between four and six days. Joe is allowed to go home immediately after the surgery. However, Dr. Davis tells Joe that he should stay home during recovery and try not to engage in too much physical activity. Finally, before Joe leaves, Dr. Davis informs him of the nerve damage that resulted from the anesthetic injection. Dr. Davis tells Joe that he does not believe that it will become a serious problem and that it should heal itself within a few weeks.

On the second day of his recovery, Joe notices problems with numbness on the left side of his face and severe pain throughout the rest of his face and decides to return to the hospital to consult Dr. Davis on the problem. Dr. Davis informs Joe that, although the surgery on the tumor was performed successfully, the improper implantation of the needle caused Joe to suffer irreversible nerve damage that will result in a permanent facial distortion, which also will cause a permanent muscle pain in his face. Dr. Davis tells Joe that he had hoped the nerve damage would heal over time. However, he indicates that it has now become apparent that the damage is permanent. Unfortunately, there are no medical procedures that can repair the nerve damage. Dr. Davis regrets the fact that Joe must deal with this nerve damage and acknowledges that he did in fact, improperly implant the needle.

Over time, this facial distortion causes his face to droop on one side causing others to believe that his face is deformed. Joe believes that the deformity radically alters his appearance to others in a very negative way. He believes that, because of it, he has lost many friends. He also indicates that he regularly notices strangers staring at him in public places. Eventually, Joe's fiancé leaves him. While Joe acknowledges that his fiancé never outright said it, Joe believes that she simply could not deal with the facial deformity. Since the surgery, Joe has become very depressed.

**2) Directions:** Your task is to determine how much responsibility, if any, should be attributed to the patient and/or the physician for the injuries sustained during this medical procedure. In the previously-described situation, both Joe and Dr. Davis agree that the needle was improperly planted. In the legal setting, responsibility is assigned to physicians based upon the following criteria: (1) the physician owed a duty of care to another, which is established once the physician agrees to provide care for the patient; (2) the physician violated the standard of care that should be expected in such procedures; and (3 & 4) the violation of the standard of care caused the injuries sustained by the plaintiff. A physician who holds him/herself out to be a specialist in a particular field of medicine has a duty to use his/her skill and knowledge as a specialist in a manner consistent with the special degree of skill and knowledge ordinarily possessed by other specialists in the same field of expertise at the time of the diagnosis and/or treatment. A violation of this duty is negligence. You may also decide that the patient bears responsibility for the injuries sustained during the procedure. Decisions regarding who is responsible will not impact whether or not the patient receives compensation for his injuries nor will it impact how much compensation is received.

a. In the spaces provided below, please provide a percentage of responsibility for the injuries sustained during the medical procedure that you believe should be attributed to each of the parties involved. For example, if you believe Dr. Davis was primarily responsible for Joe's injuries but Joe also bears some responsibility, you might assign 80% to Dr. Davis and 20% to Joe. Both percentages must add up to 100%. If you believe that no one was responsible, please circle that option below.

   Joe_____ Dr. Davis_____

   No one is responsible.

b. What factors contributed to the amount of responsibility you assigned to **Joe**?

   _____

   _____

   _____

   _____

   _____

On the scale below, please indicate how certain you feel about the degree of responsibility that you have attributed to **Joe**.

Very Uncertain 1 2 3 4 5 6 7 Very Certain

c. What factors contributed to the amount of responsibility you assigned to **Dr. Davis**?

_____

_____

_____

_____

_____

On the scale below, please indicate how certain you feel about the degree of responsibility that you have attributed to **Dr. Davis**.

Very Uncertain 1 2 3 4 5 6 7 Very Certain

d. If you indicated that no one is responsible, please explain why you believe this. If you indicated that either Joe and/or Dr. Davis was responsible, please move on to question e.

_____

_____

_____

_____

_____

On the scale below, please indicate how certain you feel in your decision that no one was responsible.

Very Uncertain 1 2 3 4 5 6 7 Very Certain

e. How would you describe the surgery that was performed?

_____

_____

_____

f. On the scale below, please indicate how complicated or difficult of a surgery you *believe* the surgery performed by Dr. Davis is.

Very Uncomplicated 1 2 3 4 5 6 7 Very Complicated

Please explain why you chose the particular degree to which you believe this surgery was complicated or not.

_____

_____

_____

g. Is there anything regarding this incident that you can/do not understand?

_____

_____

_____

_____

h. Is there any other information you think is missing or that you would like to

know about this incident?

_____

_____

_____

i. On the scale below, please indicate how severe you believe the injuries sustained
by Joe (the patient) are.

Not Severe 1 2 3 4 5 6 7 Very Severe

Please explain why you indicated that particular degree of severity in the preceding question.

_____

_____

_____

_____

_____

j. On the scale below, please indicate the degree of sympathy that you feel for **Joe** (the patient) in this scenario.

No sympathy 1 2 3 4 5 6 7 A lot of sympathy

Please explain why you selected the particular degree of sympathy for **Joe** in the preceding question:

_____

_____

_____

_____

k. On the scale below, please indicate the degree of sympathy that you feel for **Dr. Davis** (the doctor) in this scenario.

No sympathy 1 2 3 4 5 6 7 A lot of sympathy

Please explain why you selected the particular degree of sympathy for **Dr. Davis** in the preceding question:

_____

_____

_____

_____

_____

l. Medical procedures can often be characterized as falling into one of two categories. Procedures out of medical necessity are those in which the patient must undergo surgery to avoid sustaining severe injuries. Elective procedures include those in which the patient may decline surgery without facing any severe medical consequences or those in which the patient chooses to undergo surgery even when it is not medically necessary. On the scale below, please indicate the degree to which you believe Joe's procedure could be considered elective.

Not Elective 1 2 3 4 5 6 7 Elective

Please explain why you selected the particular degree of elective/not elective for the preceding question:

_____

_____

_____

_____

m. Is there anything else about this incident (either stated or unstated) that you believe is significant in determining the responsibility that any party may or may not have for Joe's injuries? Please explain.

**3) Directions:** Please indicate whether or not you agree or disagree with the following statements regarding your experiences with your physician.

1. Are you currently seeing a physician for an ongoing health condition?

   Yes_____ No_____

2. Do you have a physician that you see regularly or prefer to see, for physicals and/or other health-related issues?

   Yes_____ No_____

3. IF you answered NO to both of the above questions, please skip to section 4. If you answered YES to either question, please continue below. The following questions assess your opinions of your interactions with your physician. Please indicate the degree to which you agree or disagree with the following statements.

   a. The physician typically goes straight to my medical problem without first greeting me.

      Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

   b. The physician typically greets me pleasantly

      Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

   c. The physician seems to pay attention as I describe my conditions.

      Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

   d. The physician makes me feel as if I could talk about any type of problem.

      Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

   e. The physician asks questions that are too personal.

      Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

   f. The physician handles me roughly during examinations.

      Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

g. The physician typically gives me an explanation of what is happening during the examination.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

h. The physician typically explains the reasons why the treatment was recommended for me.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

i. I feel the physician typically diagnoses my condition without enough information

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

j. The physician has recommended treatments that are unrealistic for me.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

k. The physician considers my individual needs when treating my conditions.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

l. The physician seems to rush during my visits.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

m. The physician behaves in a professional and respectful manner toward me.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

n. The physician seems to brush off my questions.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

o. The physician often uses words that I do not understand.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

p. The physician usually does not give me all the information I think I should have

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

q. The physician has criticized me for not taking care of myself.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

r. I would recommend this physician to a friend.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

s. I would return to this physician for the future health care.
Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

**4) Directions:** Please carefully read each of the following statements and indicate the degree to which you agree or disagree with each statement.

a. There are far too many frivolous lawsuits today.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

b. I would not hesitate to file a lawsuit if I felt injured by another party.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

c. The large number of lawsuits shows that our society is breaking down.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

d. Most people who sue others in court have legitimate grievances.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

e. The money awards that juries are awarding in civil cases are too large.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

f. I often make important decisions with my heart, rather than my head.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

g. People these days are always trying to blame others for their misfortune.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

h. People often try to take advantage of being victims.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

**5) Directions:** Please carefully read each of the following questions and circle the most appropriate answer.

1. How would you rate the quality of care provided by our nation's healthcare system? Would you say it was excellent, good, fair, or poor?

   Excellent Good Fair Poor Don't know

2. Do you think the quality of care provided by our nation's healthcare system has gotten better, gotten worse, or stayed the same in the past five years?

   Gotten better Stayed the same Gotten Worse Don't know

3. What percentage of medical malpractice lawsuits do you think are justified?

   Less than half the time Half the time More than half the time Don't know

4. What percentage of medical malpractice lawsuits do you think are won by the patient?

   Less than half the time Half the time More than half the time Don't know

5. The following contains a list of several medical professionals and organizations. Please indicate how caring you think each one is about their patients' health and well-being.

   a) Doctors:

   Very caring Somewhat caring Somewhat uncaring Very uncaring Don't know

   b) Nurses:

   Very caring Somewhat caring Somewhat uncaring Very uncaring Don't know

   c) Hospitals:

Very caring Somewhat caring Somewhat uncaring Very uncaring Don't know

**6) Participant Information:** Check each of the appropriate answers.

1. Sex:

   Male_____ Female_____

2. Ethnicity:

   White_____ African-American_____ Asian_____ Hispanic_____

   Native American_____ Other_____

3. Age:_____

4. Are you currently employed in the medical field? Yes_____ No_____

   4a. If you are currently employed in the medical field, please describe what your job is.

   _____

   _____

   _____

5. Are you related to or close friends with anyone employed in the medical field?

   Yes_____ No_____

   5a. If you are related to or close friends with anyone employed in the medical field, please describe what his/her job is.

   _____

   _____

   _____

6. On average, how often would you say that you see a physician regarding your own personal health matters.

_____

_____

# Appendix F

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 13083.501[a] | 13 | 1006.423 | 1.966 | .033 |
| Intercept | 120496.776 | 1 | 120496.776 | 235.422 | .000 |
| Elective | 397.229 | 1 | 397.229 | .776 | .381 |
| 3A | 8490.139 | 7 | 1212.877 | 2.370 | .029 |
| Elective * 3A | 1621.559 | 5 | 324.312 | .634 | .675 |
| Error | 45041.254 | 88 | 511.832 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .225 (Adjusted R Squared = .111)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5779.808[a] | 6 | 963.301 | 1.748 | .118 |
| Intercept | 181765.430 | 1 | 181765.430 | 329.883 | .000 |
| Elective | 1473.014 | 1 | 1473.014 | 2.673 | .105 |
| 3B | 2303.886 | 3 | 767.962 | 1.394 | .249 |
| Elective* 3B | 47.060 | 2 | 23.530 | .043 | .958 |
| Error | 52344.947 | 95 | 550.999 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .099 (Adjusted R Squared = .043)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5943.155[a] | 7 | 849.022 | 1.529 | .167 |
| Intercept | 113755.660 | 1 | 113755.660 | 204.920 | .000 |
| Elective | 467.450 | 1 | 467.450 | .842 | .361 |
| 3C | 1028.809 | 4 | 257.202 | .463 | .762 |
| Elective * 3C | 1926.828 | 2 | 963.414 | 1.735 | .182 |
| Error | 52181.600 | 94 | 555.123 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .102 (Adjusted R Squared = .035)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5334.174[a] | 9 | 592.686 | 1.033 | .420 |
| Intercept | 181324.418 | 1 | 181324.418 | 316.000 | .000 |
| Elective | 1179.148 | 1 | 1179.148 | 2.055 | .155 |
| 3D | 1721.443 | 5 | 344.289 | .600 | .700 |
| Elective * 3D | 472.165 | 3 | 157.388 | .274 | .844 |
| Error | 52790.581 | 92 | 573.811 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .092 (Adjusted R Squared = .003)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 6668.596[a] | 12 | 555.716 | .961 | .492 |
| Intercept | 137132.182 | 1 | 137132.182 | 237.188 | .000 |
| Elective | 2413.846 | 1 | 2413.846 | 4.175 | .044 |
| 3E | 2368.008 | 7 | 338.287 | .585 | .766 |
| Elective* 3E | 657.528 | 4 | 164.382 | .284 | .887 |
| Error | 51456.159 | 89 | 578.159 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .115 (Adjusted R Squared = -.005)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 3825.014[a] | 8 | 478.127 | .819 | .588 |
| Intercept | 197154.646 | 1 | 197154.646 | 337.670 | .000 |
| Elective | 1065.615 | 1 | 1065.615 | 1.825 | .180 |
| 3F | 441.202 | 4 | 110.300 | .189 | .944 |
| Elective * 3F | 38.706 | 3 | 12.902 | .022 | .996 |
| Error | 54299.741 | 93 | 583.868 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .066 (Adjusted R Squared = -.015)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8165.402[a] | 10 | 816.540 | 1.487 | .157 |
| Intercept | 183417.581 | 1 | 183417.581 | 334.092 | .000 |
| Elective | 934.297 | 1 | 934.297 | 1.702 | .195 |
| 3G | 4697.083 | 5 | 939.417 | 1.711 | .140 |
| Elective* 3G | 396.993 | 4 | 99.248 | .181 | .948 |
| Error | 49959.353 | 91 | 549.004 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .140 (Adjusted R Squared = .046)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 6586.906[a] | 9 | 731.878 | 1.306 | .244 |
| Intercept | 343971.514 | 1 | 343971.514 | 614.022 | .000 |
| Elective | 1143.599 | 1 | 1143.599 | 2.041 | .156 |
| 3H | 2592.538 | 4 | 648.134 | 1.157 | .335 |
| Elective * 3H | 550.293 | 4 | 137.573 | .246 | .912 |
| Error | 51537.849 | 92 | 560.194 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .113 (Adjusted R Squared = .027)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8505.623[a] | 13 | 654.279 | 1.160 | .322 |
| Intercept | 143734.123 | 1 | 143734.123 | 254.914 | .000 |
| Elective | 1838.908 | 1 | 1838.908 | 3.261 | .074 |
| 3I | 2713.396 | 7 | 387.628 | .687 | .682 |
| * 3I | 3271.242 | 5 | 654.248 | 1.160 | .335 |
| Error | 49619.132 | 88 | 563.854 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .146 (Adjusted R Squared = .020)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 10661.216[a] | 10 | 1066.122 | 2.044 | .037 |
| Intercept | 95840.099 | 1 | 95840.099 | 183.751 | .000 |
| Elective | 1811.374 | 1 | 1811.374 | 3.473 | .066 |
| 3J | 4336.116 | 5 | 867.223 | 1.663 | .152 |
| Elective * 3J | 2413.664 | 4 | 603.416 | 1.157 | .335 |
| Error | 47463.539 | 91 | 521.577 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .183 (Adjusted R Squared = .094)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5271.619[a] | 12 | 439.302 | .740 | .709 |
| Intercept | 189052.493 | 1 | 189052.493 | 318.348 | .000 |
| Elective | 576.868 | 1 | 576.868 | .971 | .327 |
| 3K | 1292.999 | 6 | 215.500 | .363 | .901 |
| Elective * 3K | 721.408 | 5 | 144.282 | .243 | .942 |
| Error | 52853.136 | 89 | 593.855 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .091 (Adjusted R Squared = -.032)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 6217.235[a] | 14 | 444.088 | .744 | .724 |
| Intercept | 265763.389 | 1 | 265763.389 | 445.435 | .000 |
| Elective | 426.334 | 1 | 426.334 | .715 | .400 |
| 3L | 833.499 | 7 | 119.071 | .200 | .985 |
| Elective * 3L | 1789.234 | 6 | 298.206 | .500 | .807 |
| Error | 51907.520 | 87 | 596.638 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .107 (Adjusted R Squared = -.037)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 4759.212[a] | 8 | 594.902 | 1.037 | .414 |
| Intercept | 185692.532 | 1 | 185692.532 | 323.606 | .000 |
| Elective | 124.463 | 1 | 124.463 | .217 | .642 |
| 3M | 507.840 | 4 | 126.960 | .221 | .926 |
| Elective * 3M | 763.540 | 3 | 254.513 | .444 | .722 |
| Error | 53365.543 | 93 | 573.823 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .082 (Adjusted R Squared = .003)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8234.613[a] | 9 | 914.957 | 1.687 | .103 |
| Intercept | 206369.709 | 1 | 206369.709 | 380.556 | .000 |
| Elective | 6298.640 | 1 | 6298.640 | 11.615 | .001 |
| 3N | 2743.923 | 5 | 548.785 | 1.012 | .415 |
| Elective * 3N | 2979.689 | 3 | 993.230 | 1.832 | .147 |
| Error | 49890.142 | 92 | 542.284 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .142 (Adjusted R Squared = .058)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 6227.851[a] | 11 | 566.168 | .982 | .469 |
| Intercept | 228050.333 | 1 | 228050.333 | 395.487 | .000 |
| Elective | 1563.456 | 1 | 1563.456 | 2.711 | .103 |
| 3O | 2586.319 | 5 | 517.264 | .897 | .487 |
| Elective * 3O | 275.754 | 5 | 55.151 | .096 | .993 |
| Error | 51896.904 | 90 | 576.632 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .107 (Adjusted R Squared = -.002)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 6640.018[a] | 12 | 553.335 | .957 | .496 |
| Intercept | 157535.505 | 1 | 157535.505 | 272.327 | .000 |
| Elective | 1675.857 | 1 | 1675.857 | 2.897 | .092 |
| 3P | 1503.075 | 7 | 214.725 | .371 | .917 |
| Elective * 3P | 2002.198 | 4 | 500.549 | .865 | .488 |
| Error | 51484.737 | 89 | 578.480 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .114 (Adjusted R Squared = -.005)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 9506.573[a] | 11 | 864.234 | 1.600 | .112 |
| Intercept | 102742.778 | 1 | 102742.778 | 190.193 | .000 |
| Elective | 2840.827 | 1 | 2840.827 | 5.259 | .024 |
| 3Q | 5631.018 | 6 | 938.503 | 1.737 | .121 |
| Elective * 3Q | 806.128 | 4 | 201.532 | .373 | .827 |
| Error | 48618.182 | 90 | 540.202 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .164 (Adjusted R Squared = .061)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 6292.214[a] | 11 | 572.019 | .993 | .459 |
| Intercept | 134045.819 | 1 | 134045.819 | 232.752 | .000 |
| Elective | 458.512 | 1 | 458.512 | .796 | .375 |
| 3R | 2527.729 | 6 | 421.288 | .732 | .625 |
| Elective * 3R | 727.259 | 4 | 181.815 | .316 | .867 |
| Error | 51832.541 | 90 | 575.917 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .108 (Adjusted R Squared = -.001)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5799.307(a) | 10 | 579.931 | 1.009 | .442 |
| Intercept | 135600.057 | 1 | 135600.057 | 235.824 | .000 |
| Elective | 510.813 | 1 | 510.813 | .888 | .348 |
| 3S | 1325.606 | 5 | 265.121 | .461 | .804 |
| Elective * 3S | 1234.697 | 4 | 308.674 | .537 | .709 |
| Error | 52325.448 | 91 | 575.005 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a R Squared = .100 (Adjusted R Squared = .001)

# Appendix G

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 7828.278(a) | 13 | 602.175 | 1.054 | .410 |
| Intercept | 165236.726 | 1 | 165236.726 | 289.102 | .000 |
| Elective | 1041.629 | 1 | 1041.629 | 1.822 | .180 |
| 4A | 3730.900 | 7 | 532.986 | .933 | .486 |
| Elective*4A | 341.984 | 5 | 68.397 | .120 | .988 |
| Error | 50296.477 | 88 | 571.551 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a R Squared = .135 (Adjusted R Squared = .007)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8933.030[a] | 14 | 638.074 | 1.128 | .345 |
| Intercept | 310251.567 | 1 | 310251.567 | 548.708 | .000 |
| Elective | 3740.498 | 1 | 3740.498 | 6.615 | .012 |
| 4B | 3079.650 | 7 | 439.950 | .778 | .607 |
| Elective*4B | 2041.877 | 6 | 340.313 | .602 | .728 |
| Error | 49191.725 | 87 | 565.422 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .154 (Adjusted R Squared = .017)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 10097.657[a] | 14 | 721.261 | 1.307 | .220 |
| Intercept | 265728.570 | 1 | 265728.570 | 481.361 | .000 |
| Elective | 4927.030 | 1 | 4927.030 | 8.925 | .004 |
| 4C | 5792.859 | 7 | 827.551 | 1.499 | .178 |
| Elective* 4C | 2056.097 | 6 | 342.683 | .621 | .713 |
| Error | 48027.097 | 87 | 552.036 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .174 (Adjusted R Squared = .041)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 13457.834[a] | 13 | 1035.218 | 2.040 | .026 |
| Intercept | 254565.141 | 1 | 254565.141 | 501.528 | .000 |
| Elective | 7314.516 | 1 | 7314.516 | 14.411 | .000 |
| 4D | 5550.881 | 7 | 792.983 | 1.562 | .157 |
| Elective* 4D | 4917.604 | 5 | 983.521 | 1.938 | .096 |
| Error | 44666.921 | 88 | 507.579 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .232 (Adjusted R Squared = .118)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8257.063[a] | 14 | 589.790 | 1.029 | .433 |
| Intercept | 262262.238 | 1 | 262262.238 | 457.547 | .000 |
| Elective | 1478.330 | 1 | 1478.330 | 2.579 | .112 |
| 4E | 2502.286 | 7 | 357.469 | .624 | .735 |
| Elective * 4E | 2466.130 | 6 | 411.022 | .717 | .637 |
| Error | 49867.692 | 87 | 573.192 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .142 (Adjusted R Squared = .004)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8883.782[a] | 14 | 634.556 | 1.121 | .352 |
| Intercept | 199663.646 | 1 | 199663.646 | 352.770 | .000 |
| Elective | 742.758 | 1 | 742.758 | 1.312 | .255 |
| 4G | 1150.434 | 7 | 164.348 | .290 | .956 |
| Elective * 4G | 3256.023 | 6 | 542.671 | .959 | .458 |
| Error | 49240.973 | 87 | 565.988 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .153 (Adjusted R Squared = .017)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8401.781[a] | 13 | 646.291 | 1.144 | .335 |
| Intercept | 243985.805 | 1 | 243985.805 | 431.807 | .000 |
| Elective | 1921.642 | 1 | 1921.642 | 3.401 | .069 |
| 4H | 4248.067 | 7 | 606.867 | 1.074 | .387 |
| Elective * 4H | 1190.744 | 5 | 238.149 | .421 | .833 |
| Error | 49722.974 | 88 | 565.034 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .145 (Adjusted R Squared = .018)

# Appendix H

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 9536.978[a] | 9 | 1059.664 | 2.006 | .047 |
| Intercept | 212365.991 | 1 | 212365.991 | 402.111 | .000 |
| Elective | 1946.418 | 1 | 1946.418 | 3.686 | .058 |
| V50 | 2325.458 | 4 | 581.365 | 1.101 | .361 |
| Elective * V50 | 3065.481 | 4 | 766.370 | 1.451 | .224 |
| Error | 48587.777 | 92 | 528.128 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .164 (Adjusted R Squared = .082)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 9008.437[a] | 8 | 1126.055 | 2.132 | .040 |
| Intercept | 293433.149 | 1 | 293433.149 | 555.605 | .000 |
| Elective | 851.551 | 1 | 851.551 | 1.612 | .207 |
| V51 | 3633.487 | 4 | 908.372 | 1.720 | .152 |
| Elective * V51 | 2792.927 | 3 | 930.976 | 1.763 | .160 |
| Error | 49116.317 | 93 | 528.132 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .155 (Adjusted R Squared = .082)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 10807.464[a] | 8 | 1350.933 | 2.655 | .011 |
| Intercept | 259892.802 | 1 | 259892.802 | 510.808 | .000 |
| Elective | 3623.579 | 1 | 3623.579 | 7.122 | .009 |
| V52 | 4500.250 | 4 | 1125.063 | 2.211 | .074 |
| Elective * V52 | 2024.833 | 3 | 674.944 | 1.327 | .270 |
| Error | 47317.290 | 93 | 508.788 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .186 (Adjusted R Squared = .116)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5595.476[a] | 8 | 699.435 | 1.238 | .286 |
| Intercept | 290608.610 | 1 | 290608.610 | 514.505 | .000 |
| Elective | 2940.250 | 1 | 2940.250 | 5.206 | .025 |
| V53 | 956.655 | 4 | 239.164 | .423 | .791 |
| Elective * V53 | 1338.603 | 3 | 446.201 | .790 | .502 |
| Error | 52529.279 | 93 | 564.831 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .096 (Adjusted R Squared = .019)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 3827.456[a] | 6 | 637.909 | 1.116 | .359 |
| Intercept | 95676.620 | 1 | 95676.620 | 167.398 | .000 |
| Elective | 639.349 | 1 | 639.349 | 1.119 | .293 |
| 5.5A | 252.206 | 3 | 84.069 | .147 | .931 |
| Elective * 5.5A | 108.661 | 2 | 54.331 | .095 | .909 |
| Error | 54297.299 | 95 | 571.551 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .066 (Adjusted R Squared = .007)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 4943.674[a] | 6 | 823.946 | 1.472 | .196 |
| Intercept | 102673.596 | 1 | 102673.596 | 183.411 | .000 |
| Elective | 694.218 | 1 | 694.218 | 1.240 | .268 |
| 5.5B | 1396.909 | 3 | 465.636 | .832 | .480 |
| Elective * 5.5B | 371.079 | 2 | 185.540 | .331 | .719 |
| Error | 53181.081 | 95 | 559.801 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .085 (Adjusted R Squared = .027)

**Tests of Between-Subjects Effects**

Dependent Variable: Davis

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 13862.987[a] | 9 | 1540.332 | 3.202 | .002 |
| Intercept | 163549.068 | 1 | 163549.068 | 339.944 | .000 |
| Elective | 445.647 | 1 | 445.647 | .926 | .338 |
| 5.5C | 9877.001 | 4 | 2469.250 | 5.132 | .001 |
| Elective * 5.5C | 820.139 | 4 | 205.035 | .426 | .789 |
| Error | 44261.768 | 92 | 481.106 | | |
| Total | 642877.000 | 102 | | | |
| Corrected Total | 58124.755 | 101 | | | |

a. R Squared = .239 (Adjusted R Squared = .164)